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Joliet, Will County, Illinois
American Cyanamide Company
ILD 000675264
SF/HRS

Site Reassessment



Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

**CERCLA
SITE REASSESSMENT WITHOUT SAMPLING**

for:

**American Cyanamide Company
Joliet, Illinois
ILD000675264**


**PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
OFFICE OF SITE EVALUATION**

September 18th, 2020

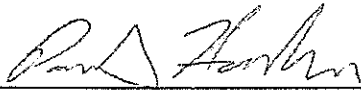
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Title: SITE REASSESSMENT for AMERICAN CYANAMIDE COMPANY

Preparer: Lee Crank, Office of Site Evaluation, Illinois Environmental Protection
Agency

Signature  Date 9/18/2020

Approval: Patrick Hamblin, NPL Coordinator, United States Environmental
Protection Agency, Region 5

Signature  Date 9/16/20

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Section 1.0 Introduction

On March 20th, 2019, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the American Cyanamide Company site in Joliet, Will County, Illinois. The site is located at 1306 McKinley Street, Joliet, Illinois. (Latitude 41.499027, Longitude -88.088916).

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the American Cyanamide Company site. The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work, and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL), or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment process Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The American Cyanamide Company site was initially placed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) now known as the Superfund Enterprise Management System (SEMS) database on September 1, 1980 following the complaints by local residents. A Preliminary Assessment (PA) was completed on April 2, 1985 with a high priority for further investigation. A Screening Site Inspection Report (SSI) was conducted on March 20, 1990 and completed January 30, 1991. A Focused Site Inspection Prioritization Report (FSIP) was completed on September 5, 1996. And an Expanded Site Inspection (ESI) was completed July 2, 2001.

The Site Reassessment Report will describe current site conditions and illustrate how the site has changed since the last CERCLA investigation in July 2, 2001. This report will contain a summary of existing information that will include site history, current site conditions, evaluate past

analytical data, and past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

Section 2.0 Site Description and History

2.1 Site Description

The 59.7-acre Joliet facility is located at 1306 McKinley Street in Joliet, Will County, Illinois (**See Figure 1**). The site is located in a mixed residential and light industry area south of Joliet in the Sections 21 and 28 of Will County, Township 35 North and Range 10 East. The site is ½ mile south of the Des Plaines River and ½ mile west of route 53. The facility is bounded to the west by McKinley Street and a residential neighborhood; Sugar Run Creek to the north; the Illinois Central Railroad line and an inactive National Quarry (owned and operated by the Vulcan Materials Company) to the east; and Zurich Road to the south (**See Figure 2**). Land surrounding the site includes a group of mobile homes, other light industry (quarries), and undeveloped wooded lots (**See Figure 3**). No schools or daycare facilities are nearby.

The American Cyanamide Company site was a dry and liquid alum manufacturing plant up until 2003 when the plant was sold C & S Chemicals Incorporated. The abandoned production area in the central portion of the property consists of one dilapidated manufacturing building, two bauxite ore silos, two other silos that historically contained sulfuric acid used to digest the bauxite ore for alumina products, and an office/shower room building. Outside the production area, there are five inactive impoundments maintained by the Cytec – Solvay Group (Solvay S.A. chemical company) currently enrolled in the Illinois EPA Site Remediation Program. These impoundments were historically used for recycling the wash water of alum manufacturing and as waste storage for the processed silica & alum sludge byproducts. According to parcel data from the Will County Treasurer, the entire 59.7-acre facility is owned by C&S Chemicals Incorporated.

The presence of a fence and four locked gates restrict vehicular access to the property yet activity of trespassing was visible during the site visit. A hole in the western fence near impoundment 4 & 5 was found and litter was scattered atop the landscape; a trail-camera and shotgun shells were found near impoundment #1 also indicating trespassing. The southern half of the property contains the impoundments #2-5 and the northern half contains impoundment #1 (**See Figure 4**). There are

few remnants of the acid production facility still found onsite. Hazardous wastes are no longer being produced at this site as the production area is no longer operational.

The ground surface consists of grass, soil, asphalt, gravel, and concrete. The topography of the site is divided by a relatively flat northern half to a hillier southern half. The hillier southern half is due to the multiple impoundments and remedial grading that have taken place. Much of the property is overgrown with invasive shrubs and phragmites. There was evidence of erosion happening atop the northern portion of impoundment #3 during the site visit (**See Appendix A**). Cytec Industries, now consolidated with Solvay S.A. chemicals company, has worked to prevent storm water from pooling and stop erosion atop these impoundments by grading portions of the southern property.

Most of the lagoon impoundments are located on the southern half of the property. These impoundments (#2-5) reside along an intermittent stream; this unnamed stream runs through the middle of the site and then drains into the Sugar Run Creek at the north end of the property that then eventually discharges into the Des Plaines River. Cytec Industries has addressed minor ground water and leachate seeps into this intermittent stream throughout the years by performing voluntary remedial actions in correspondence with the Illinois EPA's Division of Remediation Management.

2.1.1 Geological Conditions

The geology of the area consists of a loam type material or glacial drift which varies in thickness from 1 to 3 feet from ground surface, near the site and the Des Plaines River, to more than 200 feet in the northeast part of the county. Beneath the drift is a clay layer which also varies in thickness. This layer varies from 2 to 12 feet in depth. Below the clay layer the Silurian Dolomite occurs (Niagaran and Alexandrian Series). This dolomite is part of the geohydrologic system present throughout northeastern Illinois that is referred to as the shallow dolomite aquifer system. These rocks are encountered between 3 to 12 feet at the site and can be as much as 240 feet thick. The dolomite is underlain by the Maquoketa Group (Ordovician age) which consists primarily of nonwater-bearing shales that separate the Silurian aquifer from deeper water-bearing units. These shales generally are between 100 to 250 feet thick and occur from approximately 50 to 500 feet in depth. Below the Maquoketa lies the thick sequence of hydrologically connected rocks that are referred to as the Cambrian Ordovician aquifer system. This aquifer system is made up of, in downward order, the Galena and Platteville Dolomite Groups, Glenwood-St. Peter Sandstone,

Prairie du Chien Group - Dolomitic Sandstone, Eminence-Potosi Dolomite, Franconia Formation (dolomite, sandstone and shale) and the Ironton-Galesville Sandstone.

2.1.2 Demographic and Well Summary

Census data has been compiled and formatted for use in GIS applications by ESRI, a GIS software company. ESRI used demographic data from the “Census 2010 Summary File” represented by Census Block Centroids to generate data that can be overlain onto maps for analysis (ESRI). In order to calculate population in areas surrounding the site, the census data was overlain onto a map from the region and queried based on distance from the site’s boundary. Population data based on GIS analysis for areas surrounding the site is shown below. There are approximately 102,135 people living within 4 miles of the American Cyanamide Company site (**See Table 1**). A map illustrating the populations found within the 4-mile distance rings can be found at Figure 5 in this report (**See Figure 5**).

The City of Joliet obtains its drinking water from twenty-one deep bedrock wells and five shallow gravel wells throughout the county. In the past, residences and businesses in the vicinity that had elevated levels of TDS, sulfate and conductivity were ordered by the Illinois EPA to not use their private wells for consumption. The abandonment of some contaminated wells was accomplished with the oversight of the Will County Health Department. In 2016, one residence was found to have elevated levels of sulfate and required connection to a municipal water supply. Solvay S.A. is currently taking voluntary measures to sample private potable wells, provide bottled water, and working to connect contaminated residences with a municipal drinking water supply. According to Illinois Well & Intake data, there are five (5) CWS wells and eight (8) non-CWS wells within a ½ mile radius of the American Cyanamide Company site (**See Table 2**). A map illustrating the wells found within the 4-mile distance rings can be found at Figure 6 in this report (**See Figure 6**).

The population and groundwater wells within four miles of the site are characterized in the following tables:

Table 1: 4-Mile Population

Distance (mi)	Population
On-Site	0
0 - ¼ mile	823
¼ - ½ mile	1,039
½ mile - 1 mile	5,295
1 mile - 2 miles	25,460
2 miles - 3 miles	34,492
3 miles - 4 miles	35,026

Table 2: Groundwater Wells

Distance (mi)	ISGS Wells	CWS Wells	NonCWS Wells
On-Site	4	0	0
0 - ¼ mile	44	2	3
¼ - ½ mile	68	3	5
½ mile - 1 mile	97	3	8
1 mile - 2 miles	279	6	11
2 miles - 3 miles	496	19	30
3 miles - 4 miles	719	18	28

2.2 Operational History

Although the site is officially listed as “American Cyanamide Company” for CERCLA investigations, the site is currently owned by C&S Chemicals Incorporated. The Cytec – Solvay Group presently follows the accord of remediating and maintaining the property under Illinois EPA guidelines. The site was originally transferred from the American Cyanamide Company to Cytec Industries in December 1993 as part of American Cyanamide’s global chemical business spin-off. Cytec Industries then sold the property in 2003 to C&S Chemicals Incorporated but still retained remedial obligations as part of the sale. Cytec Industries continued to voluntarily remediate and maintain the property that confined the multiple impoundments until January 1st, 2016 when Cytec Industries became fully consolidated with the Solvay S.A chemicals company.

The Joliet plant was originally constructed in 1921 by the Superior Chemical Company to produce dry alum and baking powder. The food industry, paper industry, and wastewater treatment plants bought these products to be used in food production and water clarification. Dry alum is composed of aluminum ammonium sulfate, aluminum potassium sulfate, and aluminum sulfate. The American Cyanamide Company purchased the plant in 1931 and continued the production of dry alum in various grades including ammonia alum, potash alum, iron free alum, etc. The plant also produced hydrochloric and sulfuric acids during this time to be used as a solvent for digesting bauxite ore in the alum manufacturing process (See **Figure 7**). The plant employed nearly three hundred employees by the late 1940's. Since around the 1950's, these following changes in products, operations, and processes have occurred at the plant:

- 1953 – production of commercial liquid alum for sale was begun on a regular basis
- 1955 – sulfuric acid production capacity was increased to 150 tons per day.
- 1958 – plant began to use ore mined in Benton, Arkansas.
- 1960 – sulfuric acid plant converted from a dry sulfur feed to a liquid sulfur feed process to improve handling.
- 1974 – a mist eliminator was installed on the acid plant to reduce SO₂ emissions.
- 1980 – sulfuric acid production terminated and the acid plant was dismantled.
- 1984 – production of dry alum terminated.
- 1996 – production process was modified in late September to eliminate the need for impoundments: closure of active impoundments began in September 1996.

Since the early 1950's, with changing markets, changing economic conditions, increasing environmental concerns, the development of new products and manufacturing techniques – the Joliet Plant became trimmed and modified to eliminate the production of its many original products in order to remain competitive in the marketplace. In 1980, sulfuric acid production on site was terminated and employment at that time became thirty-six people. At the end of 1984, the production of dry alum was terminated and the facility only produced liquid aluminum sulfate with just a total of seven employees. By 1990, there were only five full-time employees. Today the site is solely monitored by S.A. Solvay security and undergoing voluntary remedial actions.

Prior to September 1996, American Cyanamide & Cytec Industries produced liquid alum at its facility by digesting bauxite ore/alumina clay in sulfuric acid. The bauxite ore was mined in

Benton, Arkansas and Andersonville, Georgia. Once the ore was received at the Joliet facility, it was digested with strong sulfuric acid. During the digestion process, the aluminum oxide (Al_2O_3) within the ore was dissolved and reacted to form aluminum sulfate. The byproduct of the process was undigested Al_2O_3 and inert silica (SiO_2) sand. The plant used the impoundment ponds to recycle wash water from alum production for further industrial reuse and waste silica settled within the five impoundments as result. An onsite inspection completed in 1981 found that the site's impoundments contained 45,000 tons of alum sludge and 40 tons of vanadium pentoxide stored in fiber containers of unknown concentration.

Four of the five impoundments were closed as they reached capacity throughout the 1960s and 1980s. Under the propriety of Cytec Industries, the alum production process became modified in 1996 for the use of alumina trihydrate rather than bauxite ore – this modification resulted in processed silica no longer being generated and the use of onsite impoundments for managing the processed silica terminated as a result. The remaining impoundment (impoundment #4), located in the southern portion of the site, was closed on July 1997 and capped with two feet of clay, ½ feet of topsoil, and vegetative growth. The oldest impoundment (impoundment #1) in the northeastern part of the property was only filled in with soil and covered with vegetation. Additional activities were conducted at impoundments #2, #3, and #4 in 1999 to promote surface storm water runoff, reduce the infiltration of storm water, and prevent erosion. The processed silica stored within the impoundments still contain residual alum and exhibit a pH of 3.5 to 4.5 standard units.

2.2.1 Pollution History

The site has a history of excessive particulate emissions and leachate breaches. The substance, processed silica & alum sludge, was found to be toxic and persistent upon discovery of the site. Although aluminum sulfate is not listed as a hazardous contaminant, when exposed to water it can generate a hazardous waste detrimental to human health. The solubility of stored acids and heavy metals found onsite were a concern because of the nearby Sugar Run Creek and private wells. The site was reported to have emitted excessive amounts of sulfur dioxide (SO_2) and acid mist from 1972 to again in September 17, 1980 when SO_2 was found to be > 2000 parts per million (greater than the allowable limit). An impoundment ditch that contained 360,000 gallons of alum sludge eroded on August 25, 1981 and became exposed to the nearby Sugar Run Creek. On April 13,

1983, two six-inch transit pipelines ruptured which resulted in impoundment #4 draining into impoundment #3 already full of alum sludge to then overflow into the intermittent stream that flowed into Sugar Run Creek. On April 25, 1990, 1,250 gallons of aluminum sulfate liquid was released via a spill at the production area's loading dock. Today, the primary public health and environmental concerns for the American Cyanamide Company site involves the presence of large amounts of processed silica impounded at the site and its potential for release to groundwater. Stable sulfate concentrations less than the IEPA's Groundwater Remediation Objective have been monitored at offsite wells since 2007.

2.3 CERCLA Investigative History

The American Cyanamide Company site was placed in CERCLIS on September 1, 1980 by the US EPA. The site was subsequently registered for investigation after residents had complained about personal health problems such as difficulty in breathing, tightness of the chest, and irritation of the eyes and nose as a result of the facility's emission of sulfur dioxide. The sulfur dioxide emissions were found to be very high, as high as 5000 parts per million (ppm) and exceeding the allowable limit of 2000 ppm. The Illinois EPA completed a Preliminary Assessment (PA) on April 2, 1985. The PA assessed the concern of vapor release, ground water contamination, and surface water contamination. The Illinois EPA listed the American Cyanamide Company site as a high priority for further investigation because of the persistent alum sludge and its potential solubility in groundwater and surface water pathways.

A Screening Site Inspection (SSI) was completed on January 30, 1991 by the Illinois EPA's Pre-Remedial Unit. A total of fourteen (14) samples were collected (4 soil, 4 sediment, 4 private drinking water and 2 public drinking water). The eight (8) soil/sediment samples were collected to compare onsite versus offsite information & upstream versus downstream information. The six (6) groundwater samples were taken to determine if any contaminants had migrated offsite via any groundwater pathways. Semi-volatile analysis of groundwater revealed that there were no contaminants present. Volatile analysis of the public and private wells revealed estimated values of low concentration. The analysis of soils/sediments identified elevated levels of aluminum in two downstream sediment samples and one soil sample. Various elevated values for other heavy metals were also found for barium, copper, iron, lead, and zinc. One groundwater sample revealed extremely high levels of manganese and sulfate. The SSI concluded the release of onsite

contaminants via migration of groundwater and the potential for surface water migration due to run-off emptying into the intermittent stream that runs beside the site's southern impoundments.

A Focused Site Inspection Prioritization (FSIP) was completed on September 5, 1996 by Black & Veatch Waste Science, Inc. Six (6) residential well samples were collected during the FSIP. The analysis of residential well samples revealed two inorganics being present: calcium and manganese.

An Expanded Site Inspection (ESI) was completed on July 2, 2001 by the Illinois EPA's Site Assessment Unit. The investigation included interviews with people familiar with the site, a site reconnaissance inspection, and the collection of environmental samples from the Cytec Industries property and adjacent locations. A total of thirty-seven (37) samples were collected (20 soil, 6 sediment, 7 groundwater and 4 residential water samples). Inorganic analysis of groundwater revealed elevated levels of aluminum, arsenic, barium, chromium, copper, iron, lead, , manganese, nickel, thallium, vanadium, zinc, and sulfate in the majority of groundwater samples. Five (5) groundwater samples contained sulfate levels above 400 parts per million when compared to the background sample G109. One groundwater sample, G107, contained an elevated level of Caprolactam – a semi-volatile. The analytical results of residential water samples did not indicate the presence of any volatile, semi-volatile, pesticides/PNA's, sulfate, or metals above a level of concern. Neither did the analytical results of sediment samples indicate the presence of any elevated levels for semi-volatiles, pesticides/PNA's, or metals. Inorganic analysis of soil revealed aluminum, copper, selenium, and three times the background level. Semi-volatile analysis of soil revealed three times the background level of bis(2-ethylhexyl)phthalate in sample X116. Pesticide/PNA analysis of soil revealed endosulfan sulfate, endrin aldehyde, and aroclor-1254 three times the background level.

The ESI concluded the sulfate that was discovered in the groundwater can be directly attributed to the activities that took place at the American Cyanamide facility. The site remains on CERCLIS during this time and no additional CERCLA activities have been conducted until this Site Reassessment. Following the ESI, the site was designated as a State-Lead Other Clean-up (OCA) site.

Section 3.0 Other Cleanup Authority Activities

Cytec Industries entered the Site Remediation Program on October 15, 1995 seeking the release of liability through the Tier 3 approach under the Tiered Approach to Corrective Action Objectives (TACO) for site remediation (35 IAC, Part 742). Cytec entered the Illinois Voluntary Cleanup Program to address the impoundments containing processed silica and its groundwater exposure pathways. Cytec Industries hired Golder Associates in 1995 to identify and evaluate the status of water wells in the vicinity. On 1996, Cytec and the Will County Health Department conducted an abandonment of contaminated domestic wells and residents were extended a municipal water supply connection.

Over the course of two decades, multiple groundwater well and topographic improvements have taken place at the American Cyanamide Site. During 1991, a geotechnical investigation was performed to regrade the onsite impoundments to promote stormwater runoff and reduce infiltration. Bedrock monitoring wells were also installed; six (6) onsite bedrock wells (BR 1-6) & six (6) offsite bedrock wells (BR 7-12). Between the years 2000 and 2001, additional municipal water supply extensions and well abandonments were performed based on the 1998 non-potable water results. As of 2017, there are 12 private/semi-private potable wells along McKinley Street (west of the site) and Solvay S.A. continues to test potable wells in case residential water quality levels warrant a municipal water connection (**See Attachment A, p. 34**).

A Phase II investigation by Golder Associates was conducted on December 1996. The northern impoundment (impoundment #1) was the likely source impacting local groundwater quality based off the Illinois EPA's SSI report and Water Well Survey. Golder Associates therefore focused on the northern impoundment during this investigation. The investigation concluded that the removal or hydraulic containment of processed silica was not necessary. The investigation recommended actions to improve surface water runoff management at the northern impoundment.

Cytec Industries hired Blasland, Bouck & Lee, Inc to conduct a Phase II Site Assessment on August 1997. This report was performed to identify potential areas of concern other than those indicated in previous site investigations, conduct soil screening at areas of concern to verify the presence/absence of contamination, and confirm locations for installing onsite monitoring wells. Soil sampling was conducted near the site's historic sulfuric acid production and truck unloading areas. The results of the sampling event suggested that soil conditions in the operations area have

not adversely affected ground-water quality at the site. The results of the soil samples near the production area reveal soil pH to be circumneutral with the exception of one sample that was taken directly beneath the acid transfer pump.

On August 1997, the Illinois EPA recommended that Cytec should determine the impact of offsite groundwater before claiming to have removed the potential exposure pathway. Blasland, Bouck & Lee, Inc developed a sampling plan for offsite domestic wells during April 1998 to summarize the results of potable water in the area.

Forty-five (45) offsite domestic wells were sampled on August 1998. 25 of the 26 offsite domestic wells contained concentrations of aluminum, manganese, sulfates, and total dissolved solids below the Illinois EPA Ground water Cleanup Objectives (GWCO). Levels of pH were also found to be acceptable in these wells with a range of 6.8-7.4. Results of the eleven (11) domestic wells located immediately west of the facility exhibited elevated sulfate concentrations. Cytec supplied residents on Ullian Street and McKinley Street with bottled water as a result of the elevated sulfate concentrations during this timeframe.

Blasland, Bouck & Lee, Inc submitted a Remedial Action Report (RAR) on 2002 to provide a comprehensive report of remediation activities at the American Cyanamide site. Per RAR, a 5-year groundwater monitoring program was initiated in 2003 to document the migration of groundwater impact from onsite impoundments. In 2007, stable concentrations of sulfate at all onsite monitoring wells were exhibited, except at the BR-1 monitoring well where a significant increase of sulfate was indicated. Stable concentrations less than the Illinois EPA's Groundwater Remediation Objective (GWRO) were exhibited for offsite groundwater bedrock wells.

The seventh year of the extended groundwater monitoring program occurred on 2009. The 2009 bedrock groundwater monitoring results indicated sulfate and TDS at concentrations greater than the Illinois EPA's GWRO at wells BR1 – BR5 (onsite wells), however, the 2009 bedrock monitoring well sample results for sulfate indicated stable/lower concentrations when compared to historical results. Side-slope maintenance and beaver control activities were also conducted in 2009 to prevent further erosion at the site's impoundments.

Bedrock monitoring results from 2010 exhibited sulfate and TDS at concentrations greater than the Illinois EPA's GWRO at wells BR1 – BR4 (onsite wells). Offsite wells BR7, BR10, BR 11,

and BR12 had sulfate concentrations less than the GWRO criterion. The well sample results indicated stable/lower concentrations when compared with historical results – an indication that natural attenuation of sulfate in groundwater is occurring to the extent that offsite groundwater beyond the site is unaffected and elevated sulfate concentrations remain within the site.

Between 2015 & 2016, Cytec conducted additional sampling to delineate the appropriate boundary of a groundwater-use restriction ordinance so that appropriate restrictions can be implemented as part of the American Cyanamide Company site's remediation. Cytec developed a Project Communication Plan for transparency in May 2015 and distributed a Project Fact Sheet to the local community in June 2015. Potable wells were also sampled at 10 residential wells – all samples, except for one residence, having concentrations less than the Illinois EPA's Groundwater Quality Standard of 400 milligrams per liter for sulfates. A plan was developed to hook-up a municipal water supply at the one residence. In 2016, Cytec was approved to use 1,400 cubic yards of clean clay for regrading the property's impoundments.

In 2017, the Cytec – Solvay Group used 160 cubic yards of laboratory tested clean topsoil for the grading and recontouring impoundment #3 to improve stormwater drainage. One additional bedrock well (BR13) was planned to be installed to further define the sulfate plume. Remaining tasks include submitting a limited area groundwater ordinance. As of January 2020, there has been no documentation of a RAP, RACR, SMOA, NFR, or focused NFR.

Section 4.0 Source Discussion and Pathway Analysis

4.1 Groundwater Migration Pathway

The unconsolidated overburden material underlying the site is characterized as Pleistocene-age clayey glacial till, with thin localized deposits of lacustrine clay, silt, and sand. The unconsolidated overburden varies in thickness from as little as three feet in the northern portion of the site to approximately 40 feet in the southern portion.

The processed silica impoundments are underlain by the unconsolidated overburden material, with the exception of the southern side of impoundment #1, where the processed silica lies directly on the dolomitic bedrock. The thickness of processed silica stockpiled in the five impoundments range

in thickness from less than ten (10) feet in impoundment #2 to approximately forty (40) feet in impoundment #5.

Two main hydrogeologic units have been identified in the vicinity of the site base on the geology: the unconsolidated overburden and the underlying dolomitic bedrock. Well logs west of the site indicate that ground water is first encountered in bedrock at a depth of approximately 40 to 50 feet below ground surface (bgs). Ground water is withdrawn for potable use from the dolomitic bedrock aquifer at a depth of approximately 150 to 200 feet bgs.

Using ArcGIS to spatially assess 2010 Census population centroids and Illinois Wells & Intakes in a series of buffer rings, the following table depicts an estimation of the number groundwater wells and population within 4-miles of the site (See **Table 3**):

Table 3: Number of Wells and Users Within 4-Miles of American Cyanamide

Distance (mi)	CWS Wells	NonCWS Wells	Population
On-Site	0	0	0
0 - ¼ mile	2	3	823
¼ - ½ mile	3	5	1,039
½ mile - 1 mile	3	8	5,295
1 mile - 2 miles	6	11	25,460
2 miles - 3 miles	19	30	34,492
3 miles - 4 miles	18	28	35,026

The 26 well network for the City of Joliet supplies 148,693 people. Each municipal well should presumptively supply 5,719 persons per well.

According to the Potable Water Supply Well Survey conducted by Arcadis in 2017 – there are twelve (12) private/semi-private potable wells, five (5) active non-CWS wells, and two (2) Joliet/Clearview Subdivision CWS wells within a 2,500-foot buffer from the American Cyanamide Company site remediation boundary (See **Attachment A, p. 34**). Municipal water supply lines exist within the subdivisions surrounding the site (*I.e. McKinley Street along the site's western border*). The Cytec – Solvay Group has proposed a ground water ordinance that expands 1,000 feet from the site's remedial boundary – a buffer that encompasses areas with ground water quality levels above the Illinois EPA's Ground Water Remediation Objective (See **Attachment A, p. 37**).

In 2003, Cytec began a groundwater monitoring program of the site which has been extended and is still on-going. The American Cyanamide Company site has had a stable plume of sulfate since 2007. The approximate extent of sulfate concentrations greater than 400 mg/L (*I.e. above the Illinois EPA Ground Water Remediation Objective*) reaches 1,000 feet into the residential neighborhood along McKinley Street.

Using data from the site's 10-year groundwater monitoring program, the site's bedrock monitoring wells (BR 1 – 12 & EB 1) were analyzed for the determination of a hazardous ranking score. BR-9 monitoring well was used as the background. Samples three times background for manganese were observed in monitoring wells BR-1, BR-2, BR-3, BR-4, BR-10, & BR-12. Samples three times background for aluminum were observed in monitoring wells BR-7 & EB-1 (**See Appendix B**).

4.2 Surface Water Migration Pathway

There are two surface drainage routes onsite and adjacent to the American Cyanamide Company site (refer to Section 2.1, p. 3). The unnamed ditch originates at an outflow pipe from the rock quarry located just south of the American Cyanamide Company site. Water is pumped from the quarry and piped to approximately one-half mile to the American Cyanamide Company property; this water then flows in a northwest direction across the American Cyanamide property. The unnamed ditch then flows from the property into the Sugar Run Creek. Surface water from Sugar Run Creek then travels northwest through a forested shrub wetland into to the Des Plaines River. The Des Plaines River is a known fishery.

4.3 Soil Exposure Pathway

Operations at the site have ceased. The processed silica from past production was impounded and still resides onsite. Four (4) out of the five (5) impoundments have a confining clay cover with vegetative growth – impoundment # 1 only having a soil and vegetated cover. A chain linked fence surrounds the property containing the impoundments. The area surrounding the site is classified as a mixture of residential and industrial land use.

Using U.S. Census Data, an estimated 7,157 people reside within one mile of the site. The nearest resident is located approximately 50 feet west of the site. There are no schools or day care facilities

onsite or within 200 feet of document soil contamination from the 2001 Expanded Site Inspection (ESI). The 2001 ESI exhibited elevated levels for both pesticides and semi-volatiles.

4.4 Subsurface Intrusion Pathway

There has been no evidence of vapor releases from shallow groundwater or surface soils documented besides the odor of rotten eggs (elevated sulfate levels) in residential faucet water. As described in *Section 3.0* of this report, these residents with odorous water were given bottled drinking water by Cytec and subsequently attached a municipal water supply. The site does not lay within a floodplain and the subsurface intrusion via surface water into basements is improbable.

4.5 Air Pathway

The site was originally discovered due to residential respiratory complaints and documented cases of excessive emission amounts for sulfur dioxide (SO₂) and acid mist. Records indicate that excessive particulate emissions once occurred at this site, however, acid mist has long been ceased since the termination of acid production in the 1980's.

Regarding the onsite impoundments, there is no potential for wind-blown particulates to migrate from the property since the silica waste has been capped and covered with soil. The impoundments are maintained in good repair via surface grading and are kept well vegetated.

Section 5.0 Summary and Conclusion

The purpose of this investigation was to assess the site without sampling and determine if site conditions have changed or remained the same since the previous CERCLA investigations and to determine if the site warrants additional evaluation. In 1980, the American Cyanamide Company site was placed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database in response to citizen complaints of personal health problems. A Preliminary Assessment (PA) was completed on April 2, 1985 with a high priority for further investigation. A Screening Site Inspection Report (SSI) was conducted on March 20, 1990 and completed January 30, 1991. A Focused Site Inspection Prioritization Report (FSIP) was completed on September 5, 1996. Following completion of an Expanded Site Inspection (ESI) on July 2, 2001, the site was designated as a State-lead Other Cleanup Authority site.

Previous site investigations by the Illinois EPA have involved comprehensive soil, sediment, groundwater, and surface-water sampling; and the analysis at numerous onsite and offsite locations. The site became active in the Illinois EPA's Site Remediation Program in 1995. Since 1995, Cytex Industries has been following recommendations provided by the Illinois EPA up until its acquisition by Solvay S.A. chemicals company in 2016. Solvay S.A. continues the accord of following the Illinois EPA's recommendations.

Concentrations of inorganics in the site's groundwater have historically been found to be elevated in some of the site's groundwater monitoring wells. Concentrations of sulfate below the Illinois EPA's Groundwater Remediation Objective (GWRO) have been found in low concentrations throughout the site's 10-year groundwater monitoring program – indicating a stable plume of groundwater contaminants. Arcadis Company delineated the plume within a ¼ mile of the site and Solvay S.A. continues to follow the recommendation of establishing clean municipal water supplies to residents affected by the plume of sulfates.

Concentrations of inorganics, semi-volatiles, and pesticides have also historically been found to be elevated at the American Cyanamide Company site. Solvay S.A. chemical company continues to enhance the topography of the site through regrading the surface with clean soil to prevent erosion and improve stormwater runoff.

Section 6.0 References

Blasland, Bouck & Lee, Inc. Phase II Site Investigation Report. August 1997. Electronic file storage system (Docuware) files for BOL LPC #1978090003. Accessed November 2019

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Clamadieu, J.-P. (2015, December 9). Solvay successfully completes the acquisition of Cytec and launches integration plans. Retrieved from <https://www.solvay.com/en/press-release/solvay-successfully-completes-acquisition-cytec-and-launches-integration-plans>. Accessed November 2019.

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Golder Associates, Inc. Phase II Site Investigation Report. Bureau of Land Division File, Ref. No 1978090003A19C, American Cyanamide Co. December 1996.

Solvay. Solvay successfully completes the acquisition of Cytec and launches integration plans. Press Release. December 2015. Retrieved from <https://www.solvay.com/sites/g/files/srpend221/files/tridion/documents/20151209-CYTEC-closing-EN.pdf>. Accessed November 2019.

Figure 4. IEPA. Site Inspection Work Plan for American Cyanamide. Pre-Remedial Unit. Division of Land Pollution Control. Bureau of Land Division File, Ref. No. 1978090003A19C, American Cyanamide Co. December 1989.

Figure 5 & Table 1. Population Block Data. United States Department of Commerce, Economics and Statistics Administration, Bureau of Census. 2010.

Figure 6 & Table 2. Well & Intakes. IEPA Geographic Information Systems database.

FIGURES

Figure 1: Site Location Map

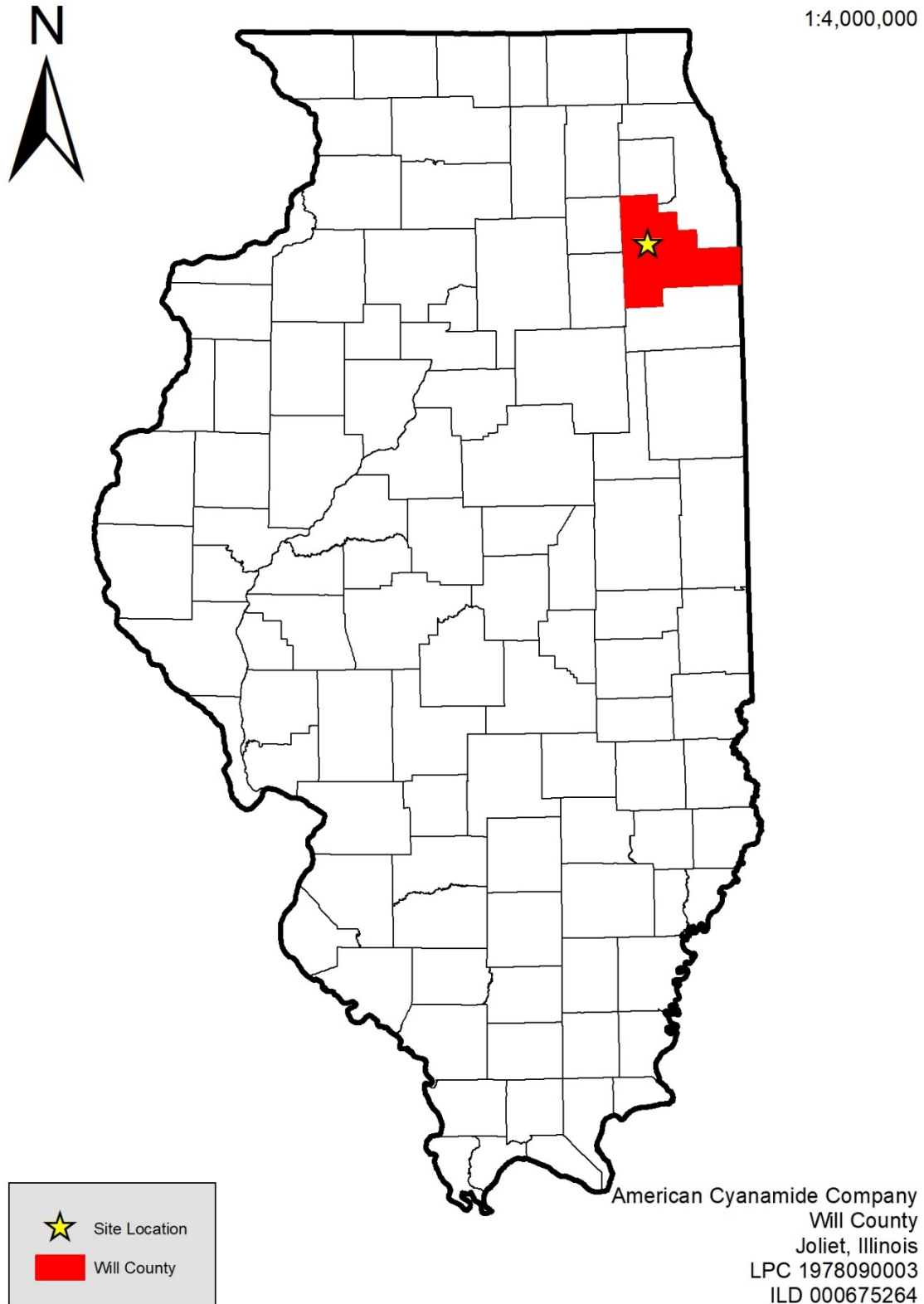


Figure 2: Site Topographic Map

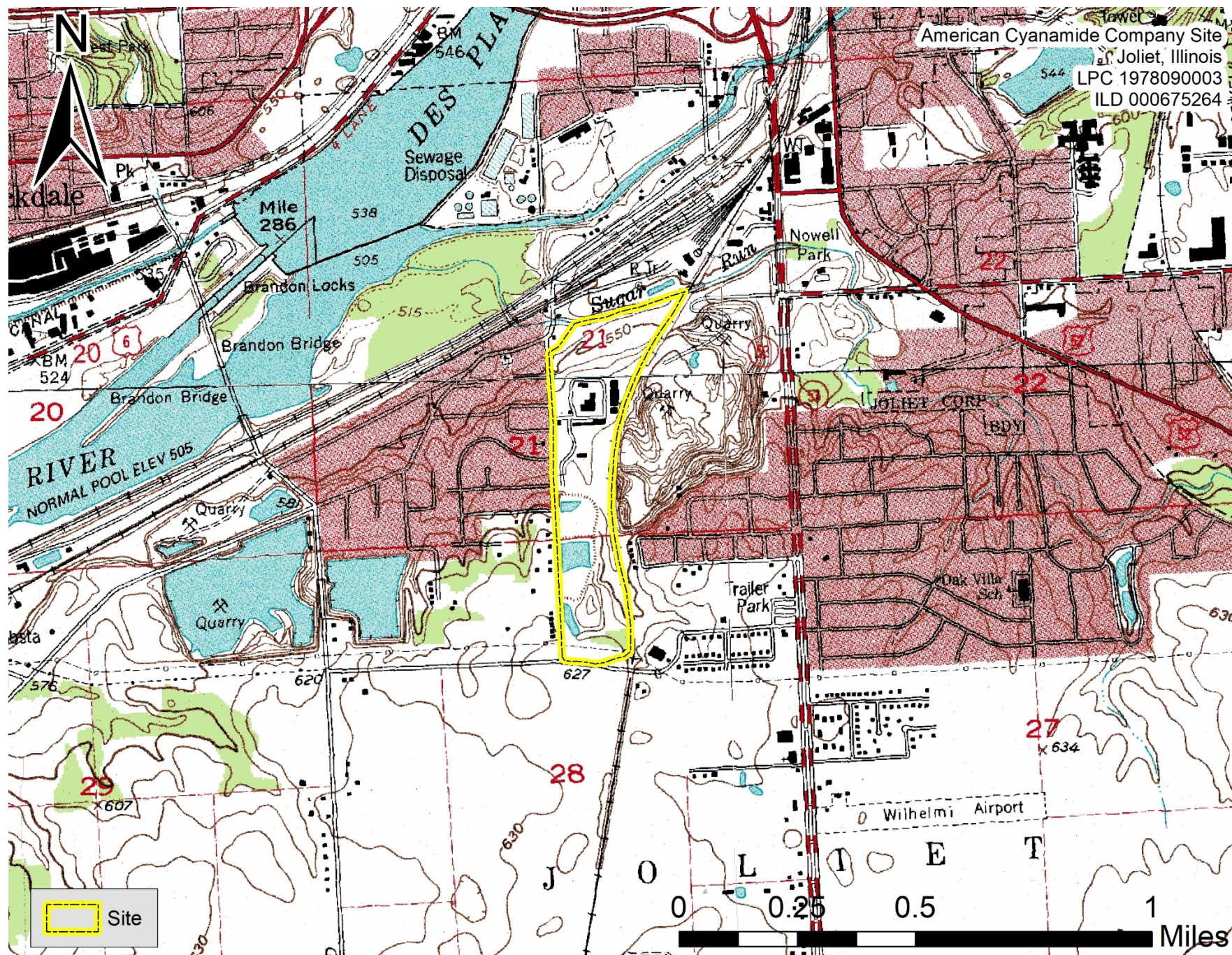


Figure 3: Site Aerial Photograph

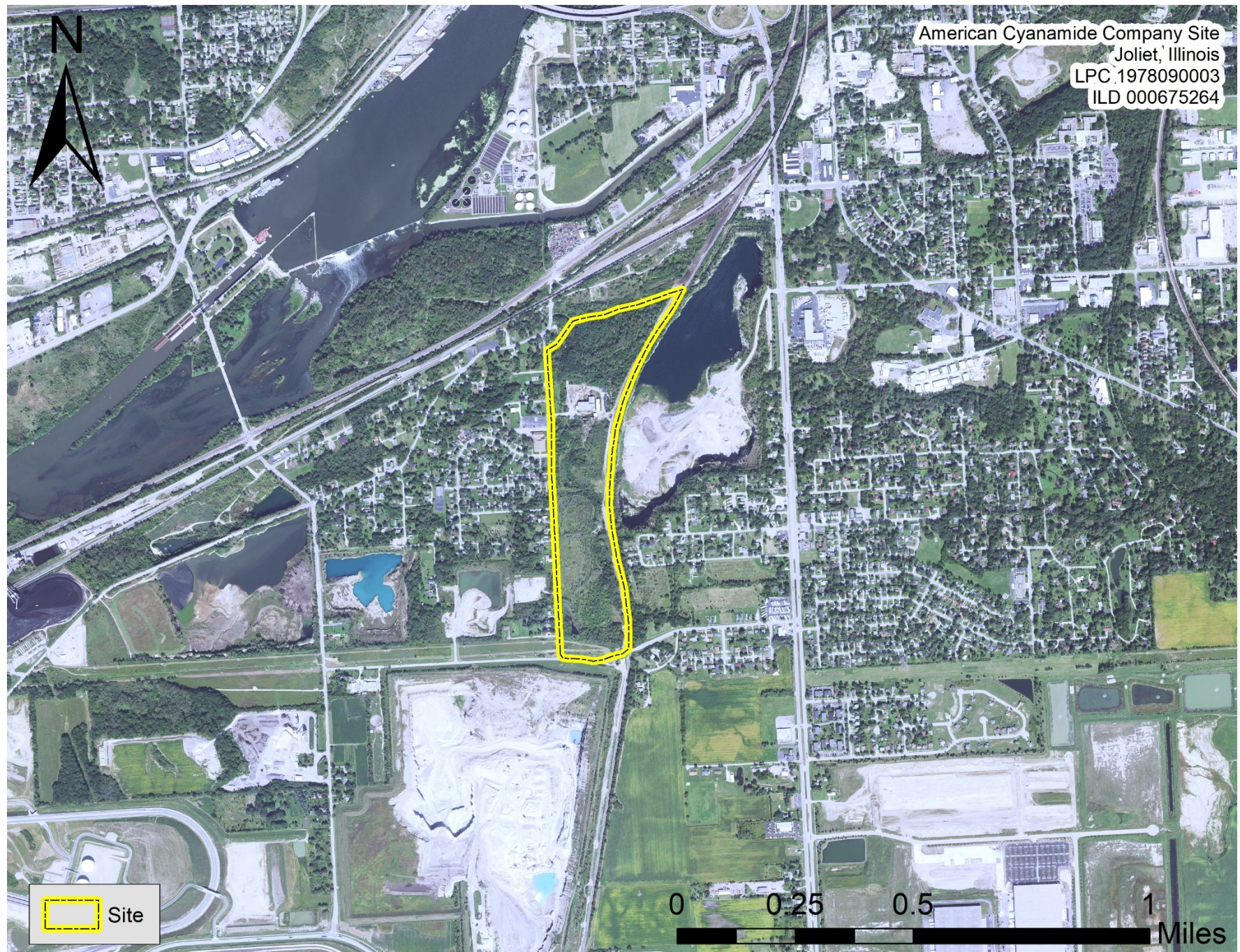


Figure 4: Hand Drawn Illustration

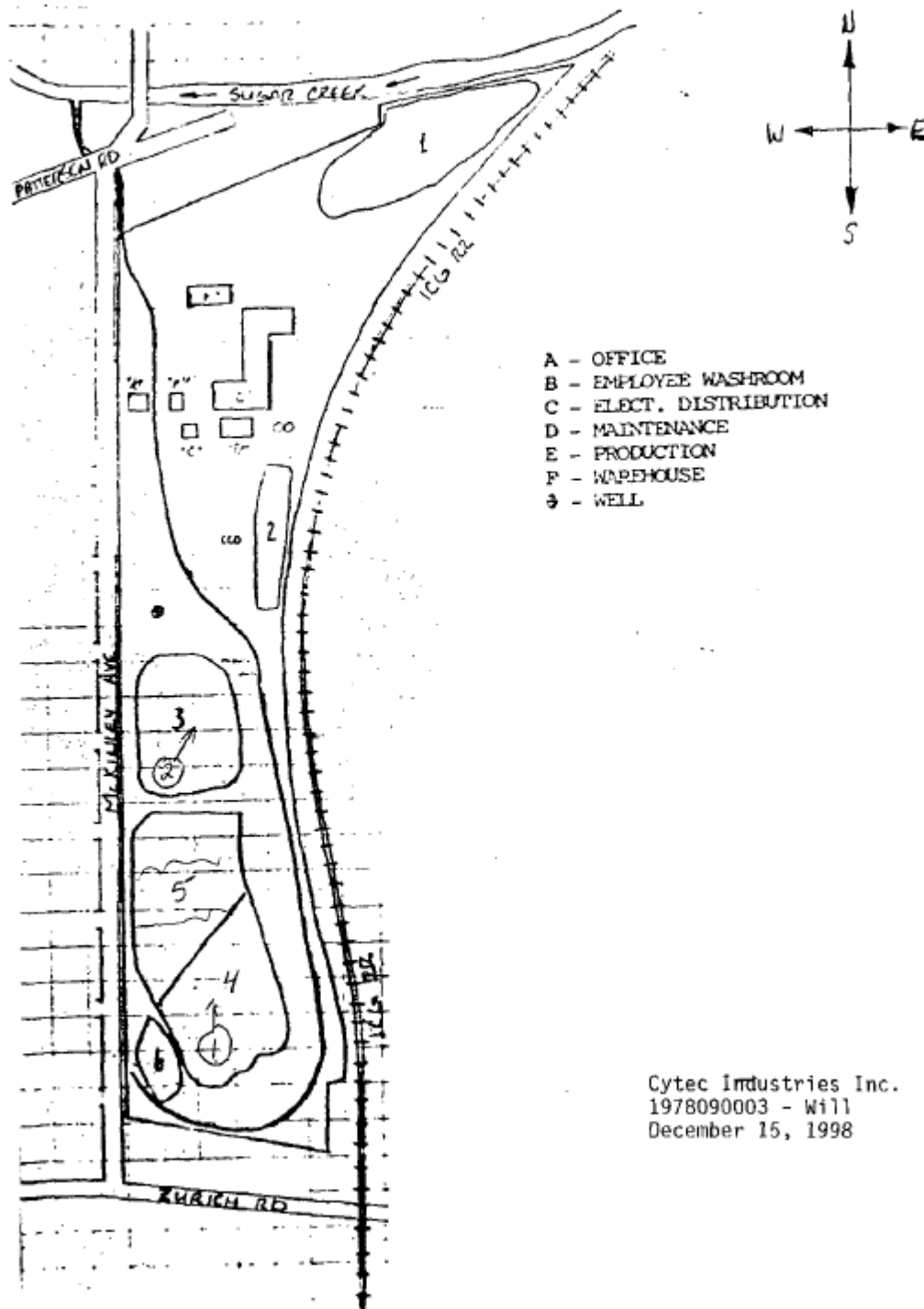


Figure 5: 4-Mile Radius Map - Population

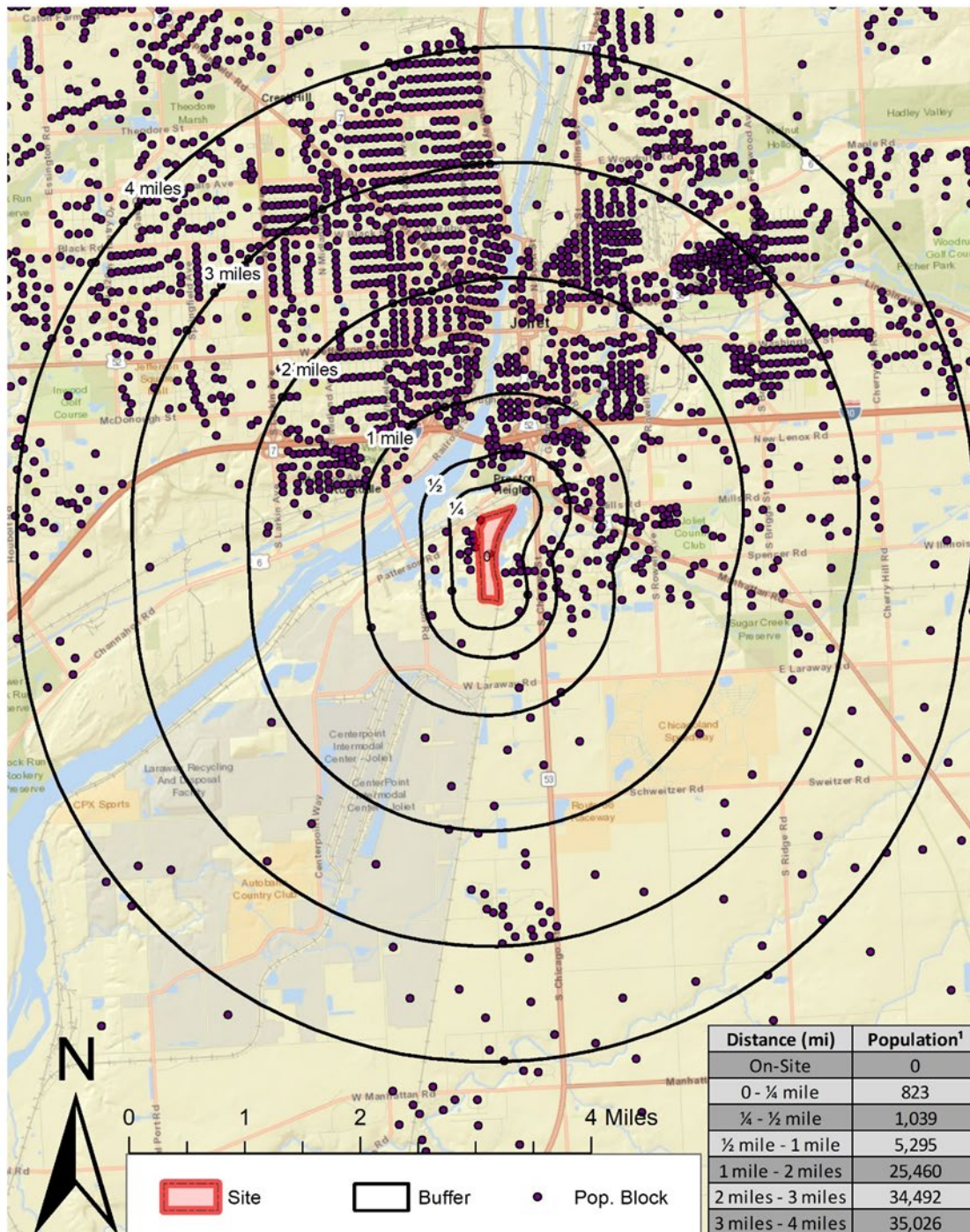


Figure 6: 4-Mile Radius Map - Wells

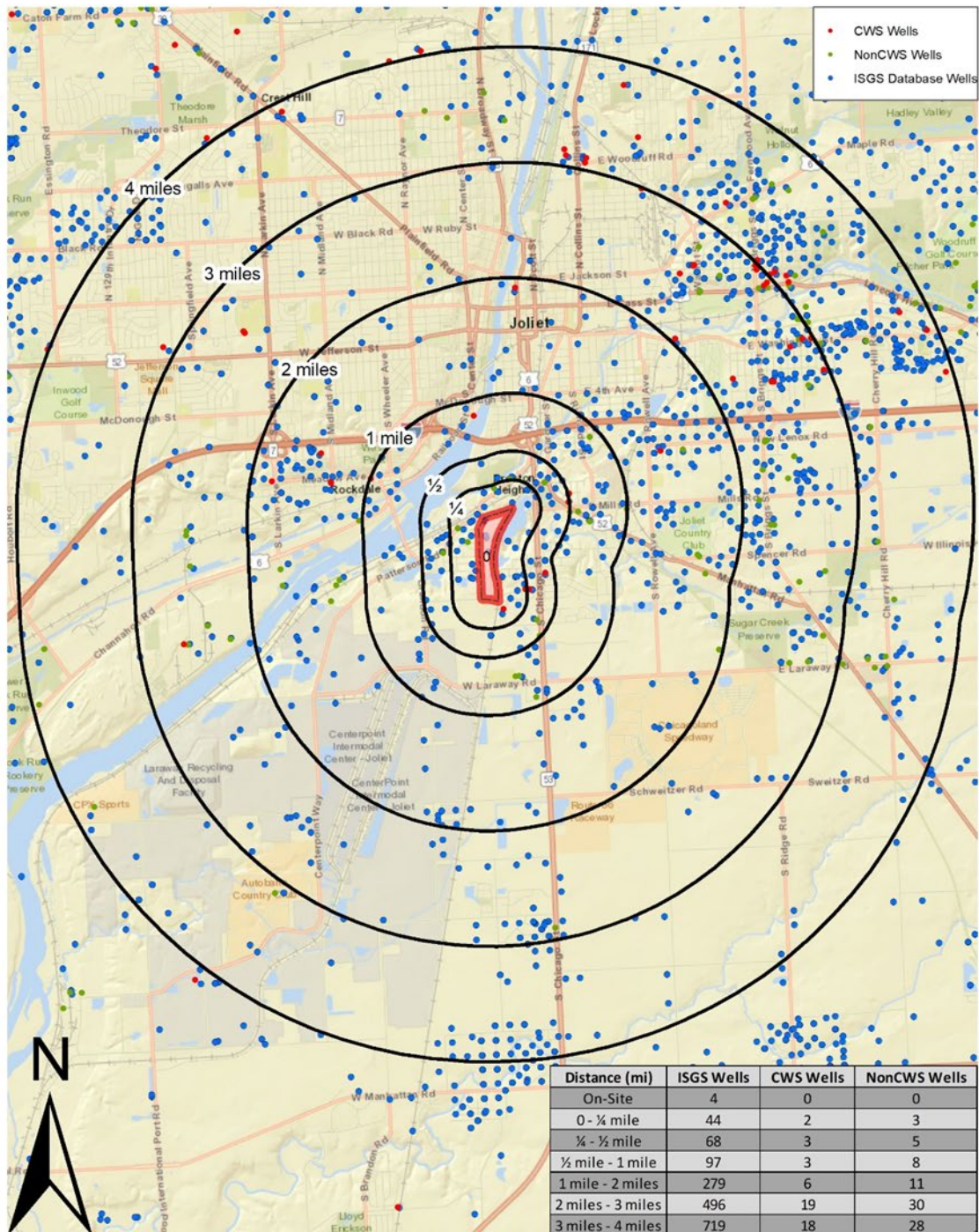
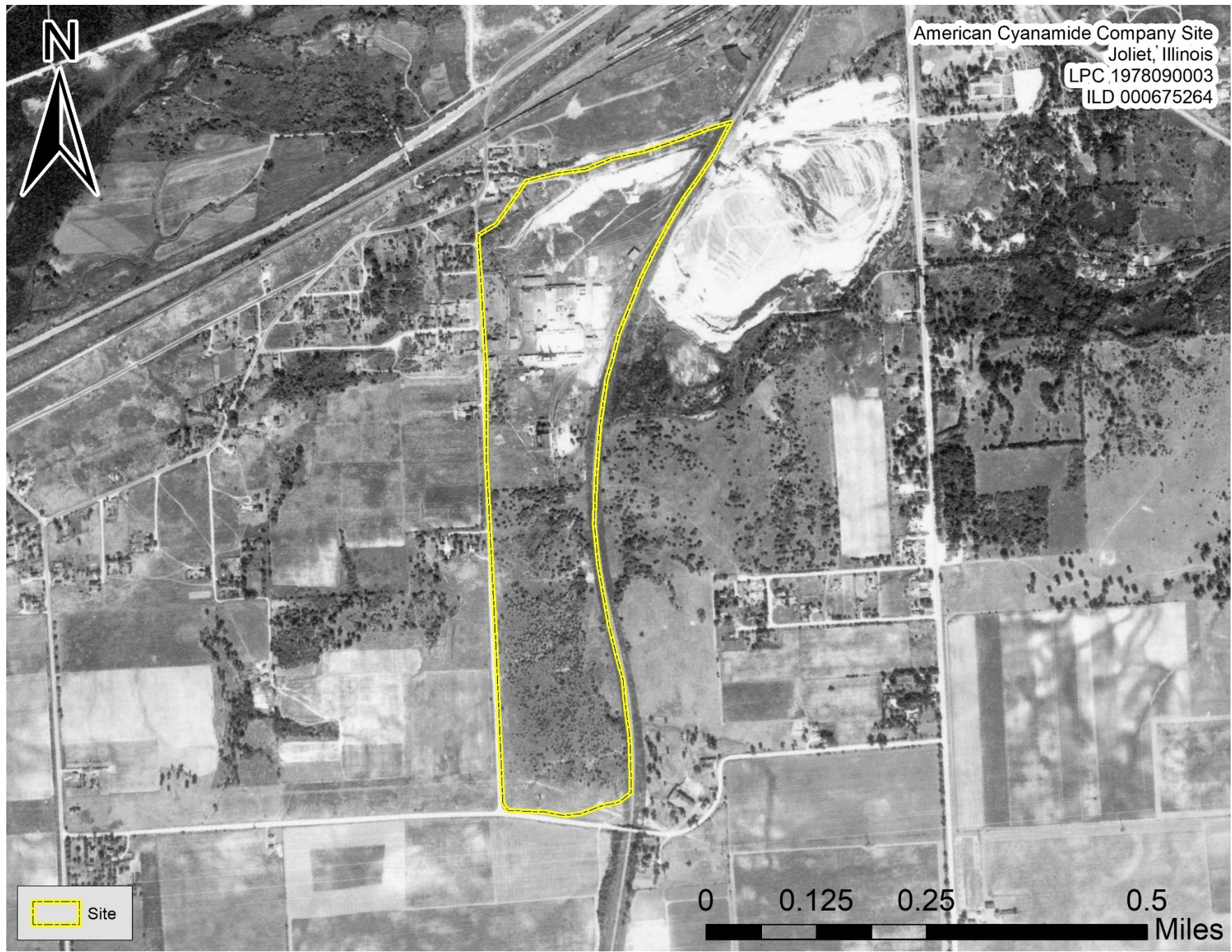


Figure 7: Historic Aerial Photograph 1939



Appendix A
ILLINOIS EPA SITE
PHOTOGRAPHS

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1010	
PHOTO BY: Lee Crank	
DIRECTION: North	
COMMENTS: Eroded Portion #1 Photo was taken atop the northern embankment of impoundment #3. The image exhibits erosion and no vegetative cover. A nonpetroleum sheen floats atop the runoff water. The water runs towards the intermittent creek that flows through the middle of the property. Soil is a dark brown clay loam.	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1015	
PHOTO BY: Lee Crank	
DIRECTION: Northeast	
COMMENTS: Eroded Portion #2 Found along impoundment #3's northern embankment. A nonpetroleum sheen floats atop the runoff water. Soil is a brown clay loam.	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1015	
PHOTO BY: Lee Crank	
DIRECTION: Northeast	
COMMENTS: Eroded Portion #3 Found along impoundment #3's northern embankment. A nonpetroleum sheen floats atop the runoff water. Soil is a brown clay loam.	

SITE NAME: American Cyanamide Company

LOCATION: Joliet, Will County, Illinois

ILD: 000675264

DATE: November 21, 2019

TIME: 1010


PHOTO BY: Lee Crank


DIRECTION: East

COMMENTS: Eroded Portion #1

A close up of the nonpetroleum sheen floating atop the runoff water.




SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1020	
PHOTO BY: Lee Crank	
DIRECTION: Southwest	
<p>COMMENTS: A photo of the surface runoff from impoundment #3 & 4.</p> <p>The surface was rocky and vegetated. Foam was exhibited atop the runoff water. This runoff discharges into the intermittent stream that eventually flows into Sugar Run Creek then the Des Plaines River.</p> <p>Stream flowing towards the photographer.</p>	


SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1020	
PHOTO BY: Lee Crank	
DIRECTION: Northeast	
<p>COMMENTS: Another photo of the surface runoff from impoundment #3 & 4.</p> <p>The surface was rocky and vegetated. Foam was exhibited atop the runoff water. This runoff discharges into the intermittent stream that eventually flows into Sugar Run Creek then the Des Plaines River.</p> <p>A portion of the Illinois Central Railroad line is visible in the background.</p> <p>Stream flowing away from the photographer.</p>	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1120	
PHOTO BY: Lee Crank	
DIRECTION: Northwest	
COMMENTS: Vegetated embankment at impoundment #1.	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1115	
PHOTO BY: Lee Crank	
DIRECTION: West	
<p>COMMENTS: Depression in the topography at impoundment #1.</p> <p>Gravelly soil.</p> <p>A lot of hedge-like tree cover.</p>	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1200	
PHOTO BY: Lee Crank	
DIRECTION: East	
<p>COMMENTS: Sugar Run Creek looking towards impoundment #1.</p> <p>Herbaceous and tree landcover.</p> <p>Stream flowing towards the photographer.</p>	

SITE NAME: American Cyanamide Company	
LOCATION: Joliet, Will County, Illinois	
ILD: 000675264	
DATE: November 21, 2019	
TIME: 1140	
PHOTO BY: Lee Crank	
DIRECTION: North	
COMMENTS: Vegetated Groundcover at impoundment #4. Grassy groundcover.	

SITE NAME: American Cyanamide Company		
LOCATION: Joliet, Will County, Illinois		
ILD: 000675264		
DATE: November 21, 2019		
TIME: 1155		
PHOTO BY: Lee Crank		
DIRECTION: Northwest		
COMMENTS: Intermittent ditch and southern portion of the property containing impoundments #2-5.		
A hilly topography.		
Intermittent ditch is a result of water being pumped by the quarry south of the site.		

Appendix B

Ground Water Data

Table 1
Inorganic Groundwater (10-year groundwater monitoring program)
American Cyanamide Company
Joliet, IL

Sample Number :	BR-9	Removal Management Levels (Industrial) mg/kg RML	BR-1	BR-2	BR-3	BR-4	BR-4 (DUP)	BR-5
Sampling Location :	Groundwater		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Matrix :	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Units :								
Date Sampled :	4/27/2006		4/26/2006	4/27/2006	4/26/2006	4/26/2006	4/26/2006	4/27/2006
Time Sampled :								
%Solids :								
pH :								
Dilution Factor :								
Inorganic Compounds	Background							
Aluminum	0.049	3,400,000	0.032	0.2 U	0.063	0.063	0.065	0.024
Manganese	0.024	77,000	0.2	0.19	0.1 U	0.58	0.58	0.032
Sulfate	87	IEPA GWRO = 400 mg/L	1700	710	3000	4000	4000	1600

Qualifiers Data Qualifier Definitions
 NS Not sampled due to absence or limited amount of water in well.
 U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
BOLD Values in bold are above the IEPA Groundwater Remediation Objective (GWRO)
 Observed contamination sample.

Sample Number :	BR-9	Removal Management Levels (Industrial) mg/kg RML	BR-6	BR-7	BR-8	BR-10	BR-10 (DUP)	BR-11
Sampling Location :	Groundwater		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Matrix :	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Units :								
Date Sampled :	4/27/2006		4/27/2006	4/27/2006	4/28/2006	4/27/2006	4/27/2006	4/28/2006
Time Sampled :								
%Solids :								
pH :								
Dilution Factor :								
Inorganic Compounds	Background							
Aluminum	0.049	3,400,000	0.024	0.2 U	NS	0.035	0.027	NS
Manganese	0.024	77,000	0.065	0.052	NS	1.2	1.3	NS
Sulfate	87	IEPA GWRO = 400 mg/L	260	140	560	340	340	170

Qualifiers Data Qualifier Definitions
 NS Not sampled due to absence or limited amount of water in well.
 U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
BOLD Values in bold are above the IEPA Groundwater Remediation Objective (GWRO)
 Observed contamination sample.

Sample Number :	BR-9	Removal Management Levels (Industrial) mg/kg RML	BR-12	EB-1
Sampling Location :	Groundwater		Groundwater	Groundwater
Matrix :	mg/L		mg/L	mg/L
Units :				
Date Sampled :	4/27/2006		4/27/2006	4/27/2006
Time Sampled :				
%Solids :				
pH :				
Dilution Factor :				
Inorganic Compounds	Background			
Aluminum	0.049	3,400,000	0.029	0.2 U
Manganese	0.024	77,000	0.12	0.006
Sulfate	87	IEPA GWRO = 400 mg/L	180	5 U

Qualifiers Data Qualifier Definitions
 NS Not sampled due to absence or limited amount of water in well.
 U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
BOLD Values in bold are above the IEPA Groundwater Remediation Objective (GWRO)
 Observed contamination sample.

Attachment A
2017 Technical Report

FILE COPY

1978090003-Will
Joliet/Cytec Industries Inc.
SR/TECH

200 Charles Ewing Blvd.
Suite 160
Ewing, NJ 08628
(609) 895-0050 (telephone)
(609) 359-8664 (fax)

<http://www.erm.com>



28 April 2017

Jeffrey J. Guy, Project Manager
Voluntary Site Remediation Unit B
Remedial Project Management Section
Division of Remediation Management
Bureau of Land
1021 North Grand Avenue East
PO Box 19276
Springfield, Illinois 62794-9276

Re: 1978090003/ Will County
Joliet/Cytec Industries
Site Remediation/Technical Reports

Dear Mr. Guy:

This technical report has been prepared in response to Illinois Environmental Protection Agency's (IEPA's) 19 March 2015 conditional approval of the 27 February 2015 response document submitted by Cytec (now known as "Solvay USA").

The comments in the 19 March 2015 conditional approval letter which were required to be addressed included:

1. One additional bedrock groundwater monitoring well (well BR-13) will be installed northeast of the Site to further define the sulfate plume in the vicinity of the setback zones of non-community supply wells AT-184 and AZ-214. The sampling results should be provided in future submittals.
2. It is understood that some additional follow-up (e.g., property owner inquiries; "FOIA"/well records requests; additional database searches; etc.) is necessary to verify and/or update the status of some water wells. Future submittals should reflect such information.
3. Sampling of some active private potable wells is planned. The sampling results should be provided in future submittals.

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4. The IEPA acknowledges the revised remediation Site boundary. The property legal description should be provided in future submittals.
5. Notification to nearby property owners may be required by the IEPA Office of Community Relations.
6. All future submittals to the Site remediation Program (SRP) should include one original and one copy of each document and a DRM-2 Form. Please provide one additional copy to the IEPA Office of Community Relations.

Response to Specific Comments

Each of these topics is addressed in this technical memorandum and a copy of the 19 March 2015 conditional approval letter is provided in Attachment 1.

1. Additional Bedrock Groundwater Monitoring Well

The IEPA identified a need for groundwater monitoring in the area northeast of the Site to evaluate sulfate concentrations. The additional monitoring well, BR-13, was installed and sampled for sulfate in June 2016 after many months of pursuing access from the property owner, the Illinois Department of Transportation (IDOT). An internal Technical Memorandum describing the well installation, well specifications, well sampling procedures, and groundwater results is provided in Attachment 2.

The well was sampled on 8 June 2016. Sulfate was detected at a concentration of 210 milligrams per kilogram (mg/kg) for sulfate and total dissolved solids (TDS) as a concentration of 590 ppm. These concentrations are below their respective IEPA Class I potable ground water quality standards of 400 mg/kg and 1,200 mg/kg, respectively.

Based on these analytical results, delineation of sulfate in groundwater at the Site has been completed, and the information will be used in the creation of a groundwater pathway exclusion ordinance as part the SRP process.



Illinois EPA FOIA Exemption Reference Sheet

SID: 12584

Agency ID: 170000162552

Media File Type: LAND

Bureau ID: 1978090003

Site Name: Cytec Industries Inc

Site Address1: 1306 S McKinley Ave

Site Address2: PO Box 2877

Site City: Joliet

State: IL

Zip: 60434-2877

**This record has been determined to
be partially or wholly exempt from
public disclosure**

Exemption Type:

Redaction

Exempt Doc #: 28

Document Date: 5 /1 /2017

Staff: EMI

**Document Description: TECHNICAL REPORT -- PAGES 3, 5; TABLE: PRIVATE WELL SAMPLING
RESULTS; LAB RESULTS AND CHAIN OF CUSTODY SHEETS**

Category ID: 31A

Category Description: SITE REMEDIATION - TECHNICAL

Exempt Type: Redaction

Permit ID:

Date of Determination:

5 /9 /2017

2. Water Wells – Additional Information

The status of some wells that were listed in the well search database was further investigated by means of a ground-truthing inspection primarily in the neighborhood located west of the Site. Updated location and/or presence/absence information for these wells includes:

- #112 was not found during the physical well survey on the IDOT property north of the Site. The former railroad roundhouse in this area was demolished years ago, and the property is used as a material laydown area. The supposed well location, near new monitoring well BR-13, would have been outside of the sulfate 400 mg/l plume line based on the result of 210 mg/l sulfate at the new monitoring well BR-13.
- #D13 was plotted on the database map in an area that had previously received a waterline extension. The single historical residence in that area has been demolished and removed. As a result, no signs of this well were observed.
- #E12 and #E15 were plotted on the database map in a wooded area adjacent to a small quarry, where houses are not currently present. The nearest street is West Zarley Boulevard to the north, where a well is located at [REDACTED]. The private, potable well at this address was sampled in 2016 as discussed in the next section.
- #T75 was not observed in the field and no residence was present at the location plotted on the well database map. This mapped location is between two sets of railroad tracks north of the Site and near monitoring well BR-11, which had a sulfate result of 32 mg/l, placing this location outside of the sulfate 400 mg/l plume line.
- #L28 was found to have been abandoned in 2002 based on Will County records obtained from a Freedom of Information Act (FOIA) request.
- #M35 had the same coordinates and address in the database as known well #M34. The physical well survey indicated only one well at this location. As a result, it is concluded that #M35 is the same well as #M34.

Attachment 3 provides an update to Figure 2 (Potable Water Supply Well Survey), which was originally submitted as part of ARCADIS' 14 July 2014

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Well Survey Report, and later revised and re-submitted as Attachment 4 of ERM's 27 February 2015 response-to-comments letter. The current revision incorporates the most-recent information presented above regarding the presence or absence of private potable wells.

Based on this updated information, property owners were contacted and arrangements were made to sample private potable wells for sulfate analysis.

3. Private Potable Well Sampling Results

As agreed upon with the Illinois EPA, a private potable well sampling event was conducted during June/July 2015. The scope of the sampling event involved sampling 10 residential wells to ensure the continued quality of the water.

Those private potable wells previously identified for sampling included D11, D18, M34 and C20. However, as indicated on the Figure in Attachment 4, additional private potable wells not in the existing well databases, located west of the Site and outside of the sulfate plume set-back zone, were also sampled to provide a more comprehensive evaluation of sulfate concentrations in groundwater and to update previous historical results for private potable wells in this offsite area. The table in Attachment 4 indicates the addresses of the sampled wells.

The private potable well sampling was completed by project scientists either sampling from an outside spigot or from an inside water faucet at the residences. The project scientists allowed the water to run for 15 minutes, flushing the pipes, prior to collecting the sample directly into laboratory-supplied sample containers (which were labelled with a unique sample identification number, including the residential address). Samples were placed in an iced-cooler following collection and submitted to a certified laboratory for analysis of sulfate.

The table provided in Attachment 4 also indicates sulfate results for the private potable wells, and the Figure indicates the locations of the private potable wells sampled. As indicated in the table and on the Figure, all sampled wells had sulfate concentrations less than the IEPA Groundwater Quality Standard (GWQS) of 400 milligrams per liter (mg/l) for sulfates, with the exception of the well located at 603 W. Zarley Avenue, which contained 610 mg/l sulfate (Attachment 4 Figure). It should be noted that well D11 is located at [REDACTED], but the well was disconnected and inactive, and the residence at this address is unoccupied. Two additional

trips to this residence were unsuccessful in obtaining a water sample due to a water line breakage and property ownership issues. As a result, a water supply is currently unavailable to this unoccupied residence (at last known contact), and a water sample could not be collected from this location.

The outcome of the offsite residential potable well sampling event confirmed previous private potable well sampling results and showed the residences with private potable wells to be positioned outside of the previously-estimated line of extent of sulfate concentrations greater than 400 mg/l, with the exception of the residence at [REDACTED]

The residence at [REDACTED] has been provided bottled water until public water supply can be established. Solvay USA and its team are working with the Southeast Joliet Sanitary District to connect water to the home at no cost for as long as the current owner retains ownership. Currently, Solvay USA is working with local officials to coordinate the approvals for the water line extension.

4. Property Legal Description

The revised remediation site boundary is indicated on Figure 1 based on the updated extent of the sulfate line. In addition, the property legal description is provided in Attachment 5.

5. Notification To Nearby Property Owners

Solvay USA accepted an "Offer Letter" dated 26 March 2015 from Illinois EPA's Office of Community Relations to conduct community right-to-know (RTK) activities related to the Site. In a 6 April 2015 Letter to IEPA, Cytac accepted the responsibility to conduct RTK activities, which included the following during 2015 and 2016:

- Prepared a 'Community Relations Plan' dated 6 May 2015 and submitted it to IEPA's Office of Community Relations
- Issued a 'Notification Letter' and 'Fact Sheet' regarding the project in June 2015 to residents and stakeholders
- Conducted the private potable well sampling event described above in June/July 2015
- Conducted a public meeting, or community information session, on 28 January 2016 at the local Baptist Church to provide project-related

information and updates to the local community. The session provided an opportunity for stakeholders to ask questions and to gain information about the project. Updates included the most recent groundwater monitoring results, and the ordinance planned as an institutional control for groundwater use restrictions in the neighborhood west and northwest of the Site.

- Established a web site (<http://www.cyttec.com/content/she-information-Joliet>) as a repository for the Site-related materials referenced above. Materials were provided in both English and Spanish.

A copy of the Community Relations Plan and the "Fact Sheet" prepared by Solvay USA and submitted to the IEPA's Office of Community Relations is provided in Attachment 6.

6. Submittals

As requested by IEPA, one original and one copy of this document are being submitted to the SRP, along with a completed DRM-2 Form in Attachment 7. One additional copy is being sent to the IEPA Office of Community Relations.

Summary

As discussed in the "sampling results" section above, additional well sampling was undertaken to update and augment existing information, and to help re-establish the zone of sulfate concentrations greater than 400 mg/l in groundwater. The figure in Attachment 4 provides a revision to the approximate extent of the sulfate line based on new private potable well data, and from new monitoring well BR-13.

A 200-foot buffer zone around the extent-of-sulfate line is also provided on the figure. Based on the location of the extent-of-sulfate line (including its 200-foot buffer), a proposed groundwater ordinance boundary line has been established and is denoted on the figure in Attachment 4. Solvay USA is seeking approval of this boundary line from IEPA, so the local groundwater ordinance approval process can continue to move forward.

ERM is currently assisting Solvay USA with planning and approvals related to connecting the residence at [REDACTED] to the municipal water supply. Further, Solvay USA is planning onsite maintenance activities (soil

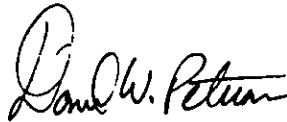
cover grading and re-contouring) associated with Impoundment 3 to improve stormwater drainage.

We look forward to a positive response from IEPA regarding the proposed groundwater ordinance boundary plotted on the figure in Attachment 4. Please contact me at (609) 403-7560 or by e-mail at kris.hallinger@erm.com.

Sincerely,



Kris D. Hallinger
Project Manager



Daniel W. Petersen, Ph. D., P.G.
Partner

Attachments:

- Attachment 1: IEPA 19 March 2015 conditional approval letter
- Attachment 2: Technical Memorandum: Monitoring Well BR-13 Installation and Sampling Results
- Attachment 3: Revised Figure 2: Potable Water Supply Well Survey
- Attachment 4: June/July 2015 Private Potable Well Sampling Results Table and Laboratory Data Package
- Attachment 5: Property Legal Description
- Attachment 6: Community Relations Plan and Fact Sheet
- Attachment 7: Completed DRM-2 Form

cc: Ken Milo
Dan Petersen
Eric Slater
Jennifer Stanhope

Attachment 1

**IEPA March 19, 2015
Conditional Approval Letter**



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

BRUCE RAUNER, GOVERNOR

LISA BONNETT, DIRECTOR

March 19, 2015

Kenneth Milo
Cytec Industries, Inc.
5 Garrett Mountain Plaza
Woodland Park, New Jersey 07424

Re: 1978090003/Will County
Joliet/Cytec Industries
Site Remediation /Technical Reports

Dear Mr. Milo:

The Illinois Environmental Protection Agency (Illinois EPA) has completed a review of the February 27, 2015 response document (received March 2, 2015; Log No. 15-58845), which was submitted by Environmental Resources Management (ERM) on behalf of Cytec Industries, Inc. (Cytec). The subject document was submitted in response to the previous Illinois EPA letter dated December 29, 2014.

The subject document is approved with the following comments:

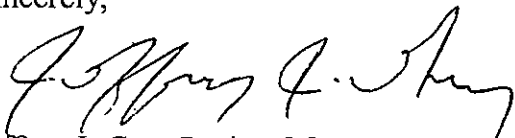
1. As requested, only recent groundwater data has been used to evaluate current site conditions (future reports will exclude historical data), and figures have been revised to depict the setback zones of private potable water wells as related to the sulfate groundwater plume. More information has also been provided regarding the different sources/databases used for the water well survey, as requested.
2. The Illinois EPA concurs that obtaining hydraulic conductivity data is not a critical issue at this time, since institutional controls in the form of groundwater ordinance(s) are being pursued.
3. As proposed, one additional groundwater monitoring well (well BR-13) will be installed northeast of the site to further delineate the sulfate plume in the vicinity of the setback zones of the non-community supply wells AT-184 and AZ-214. The sampling results should be provided in future submittals.

4. The Illinois EPA agrees that additional groundwater monitoring to the east and south of the site is not required due to the surrounding land use conditions.
5. As indicated on the revised DRM-1, sulfate is the only identified chemical of concern (COC) at this time (it is acknowledged that this may change). If the desired COCs are modified to include volatile organic compounds (VOCs), the indoor inhalation exposure route must be addressed. The updated project schedule is also included on the revised DRM-1 form: the projected date for project completion is the end of 2015. Please inform the Illinois EPA if the projected date changes.
6. It is understood that additional follow-up (e.g. property owner inquiries, "FOIA"/well records requests, additional database searches, etc.) is necessary to verify and/or update the status of some water wells. Future submittals should reflect such information.
7. The Illinois EPA acknowledges the revised remediation site boundary. The property legal description should be provided in future submittals.
8. Sampling of some active private potable wells is planned. The sampling results should be provided in future submittals.
9. Notification to nearby property owners may be required by the Illinois EPA Office of Community Relations under the Right-to-Know (RTK). Please contact Carol Fuller of the Illinois EPA Office of Community Relations at (217) 524-8807 to ensure that the RTK requirements are satisfied.

All future submittals to the SRP should include one original and one copy of each document and a DRM-2 Form. Please provide one additional copy to the Illinois EPA Office of Community Relations.

If you have questions or would like to discuss the site, please contact me at (217) 785-8724 or by e-mail at Jeff.Guy@illinois.gov.

Sincerely,



Jeffrey J. Guy, Project Manager
Voluntary Site Remediation Unit
Remedial Project Management Section
Division of Remediation Management
Bureau of Land

6WD

cc: Eric Slater
Environmental Resources Management
1701 Golf Road, Suite 1-700
Rolling Meadows, Illinois 60008

Robert Chandler
C & S Chemical Company
4180 Providence Road
Marietta, Georgia 30062

Dean Studer, Illinois EPA Bureau of Land
Carol Fuller, Illinois EPA Bureau of Land
Bureau of Land File

Attachment 2

**Technical Memorandum: Monitoring Well BR-13
Installation and Sampling Results**

Memorandum

To: Kenneth Milo, Cytec Industries, Inc.

Cc: Kris Hallinger, ERM; Dan Petersen, ERM

From: Eric Slater, ERM

Date: June 30, 2016

Subject: Cytec Industries, Inc. - Joliet, IL well BR-13 installation and sampling north of the site

One Continental Towers
1701 Golf Road, Suite 1-
700
Rolling Meadows, IL
60008
(847) 258-8900
(847) 258-8901 (fax)



The purpose of this memorandum is to present a summary of the background and activities related to the installation and sampling of the groundwater monitoring well (well BR-13). During the progression of the former Cytec Industries, Inc. - Joliet, IL facility (the "site") through the Illinois Environmental Protection Agency (IEPA) Site Remediation Program (SRP), the IEPA identified a need for an additional groundwater monitoring well to supplement the existing ground water monitoring well network. This additional well, BR-13, was to address a gap in the area northeast of the site for monitoring sulfate in groundwater.

The location designated for the well installation was approved by the IEPA. The property was found to be owned by the Illinois Department of Transportation (IDOT) Bureau of Railroads. The IDOT permitting process to enable the well installation took approximately 14 months to complete due to bureaucratic-related delays. A location map of the new BR-13 well is included as Attachment 1.

The well was drilled on June 1st and 2nd using air rotary methods to a depth of 220 feet below grade in dolomitic bedrock. The two-inch diameter PVC well was constructed using well screen for the bottom 25 feet of the well with the remaining consisting of PVC riser. The above grade surface completion top of casing and latitude/longitude was determined by a State of Illinois licensed surveyor. The well construction details may be found in the well log as Attachment 2.

The well was then developed on June 3rd, 2016, removing approximately 150 gallons from the well. After development and allowing the well to equilibrate, the well was purged and sampled for sulfate and total dissolved solids (TDS) on June 7th, 2016 using low flow methods (with stabilized monitoring parameters of temperature, conductivity, dissolved

oxygen [DO], pH and oxidation reduction potential [ORP] at the end of purging), purging approximately 30 gallons.

The analytical results from the June 8th sampling event are a sulfate concentration of 210 ppm (which is below the IEPA Class I potable ground water quality standard of 400 ppm) and a TDS value of 590 ppm (below the IEPA Class I potable ground water quality standard of 1,200 ppm). The laboratory analytical report is included as Attachment 3.

Based on these analytical results, the site has delineation of the ground water sulfate impacts and this information will be used in creating a groundwater exclusion ordinance footprint as part of the SRP process.

Attachment 1
Well BR-13 Location Map

Attachment 2
Well BR-13 Log and Construction Diagram

PROJECT: Cytec
LOCATION: Joliet, Illinois

WELL / BORING NO:

BR-13

STARTED: 6/1/16 COMPLETED: 6/2/16
DRILLING COMPANY: Cascade Drilling
DRILLING EQUIPMENT: Canterra CT-450
DRILLING METHOD: Air Rotary

NORTHING: 1761783.8 EASTING: 1052089.1
ELEVATION 561.6 T.O.C. ELEV: 564.3
WATER: 112.81 TOTAL DEPTH: 220.0
LOGGED BY: Michael Belke

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION	SAMPLE TYPE	RECOV. (%)	PID (ppm)	Comments	ELEV (ft)	WELL CONSTRUCTION
2		Overburden					560	
4		Weathered DOLOMITE bedrock. Tan, dry.					555	3/8" bentonite chips (10').
6							550	
8							545	
10							540	
12							535	
14							530	
16							525	
18							520	
20		DOLOMITE bedrock. Light grey, dry.					515	
22							510	
24							505	
26							500	
28							495	
30							490	
32							485	
34							480	
36							475	
38							470	
40							465	
42							460	
44							455	
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								
68								
70								
72								
74								
76								
78								
80								
82								
84								
86								
88								
90								
92								
94								
96								
98								
100								
102								
104								
106								
108								
110								

Bentonite
grout (176')

PROJECT NO. 0242896/14



ERM

PROJECT: Cytex		WELL / BORING NO: BR-13	
LOCATION: Joliet, Illinois			
STARTED: 6/1/16	COMPLETED: 6/2/16	NORTHING: 1761783.8	EASTING: 1052089.1
DRILLING COMPANY: Cascade Drilling		ELEVATION: 561.6	T.O.C. ELEV: 564.3
DRILLING EQUIPMENT: Canterra CT-450		WATER: 112.81	TOTAL DEPTH: 220.0
DRILLING METHOD: Air Rotary		LOGGED BY: Michael Belke	

DEPTH (ft)	GRAPHIC LOG	DESCRIPTION	SAMPLE TYPE	RECOV. (%)	PID (ppm)	Comments	ELEV (ft)	WELL CONSTRUCTION
114		DOLOMITE bedrock. Light grey, dry. (continued)					445	<div>3/8" bentonite chips (6').</div> <div>Fine-grained sand filter pack (1').</div> <div>Medium-grained sand filter pack (27').</div> <div>0.010" - slotted, 2" - diameter PVC well screen (20').</div>
116		445						
118		440						
120		440						
122		435						
124		435						
126		430						
128		430						
130		425						
132		425						
134		420						
136		420						
138		415						
140		415						
142		410						
144		410						
146		405						
148		405						
150		400						
152		400						
154		395						
156		395						
158	390							
160	390							
162	385							
164	385							
166	380							
168	380							
170	375							
172	375							
174	370							
176	370							
178	365							
180	365							
182	360							
184	360							
186	355							
188	355							
190	350							
192	350							
194	345							
196	345							
198	340							
200	340							
202								
204								
206								
208								
210								
212								
214								
216								
218								
220								
222		End drilling at 220' BGS					340	

LOG A EWINN04 BORING LOG.GPJ LOG A EWINN04.GDT 6/23/16



PROJECT NO. 0242896/14

Attachment 3
Well BR-13 June 2016 Ground Water Sampling
Event - Laboratory Data Package



16-Jun-2016

Eric Slater
ERM, Inc
1701 Golf Rd
Suite 1-700
Rolling Meadows, IL 60008

Re: **Cytec Industries (0242896)**

Work Order: **1606458**

Dear Eric,

ALS Environmental received 1 sample on 08-Jun-2016 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 10.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

Electronically approved by: Tom Beamish

Tom Beamish
Client Services Coordinator

EPA-DIVISION OF RECORDS MANAGEMENT
RELEASEABLE

MAY 08 2017

REVIEWER: EMI



Certificate No: IL: 200076

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

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www.alsglobal.com

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ALS Group USA, Corp

Date: 16-Jun-16

Client: ERM, Inc
Project: Cytec Industries (0242896)
Work Order: 1606458

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
1606458-01	BR-13	Groundwater		06/07/16 15:35	06/08/16 09:00	<input type="checkbox"/>

Client: ERM, Inc
Project: Cytec Industries (0242896)
WorkOrder: 1606458

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
mg/L	Milligrams per Liter

ALS Group USA, Corp

Date: 16-Jun-16

Client: ERM, Inc
Project: Cytec Industries (0242896)
Work Order: 1606458

Case Narrative

Samples for the above noted Work Order were received on 06/08/16. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Wet Chemistry:

No deviations or anomalies were noted.

Client:	ERM, Inc	Work Order:	1606458
Project:	Cytec Industries (0242896)	Lab ID:	1606458-01
Sample ID:	BR-13	Matrix:	GROUNDWATER
Collection Date:	06/07/16 03:35 PM		

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Sulfate	210		20	mg/L	20	06/15/16 05:50 PM
TOTAL DISSOLVED SOLIDS			A2540 C-97		Prep: FILTER / 6/10/16	Analyst: YM
Total Dissolved Solids	590		10	mg/L	1	06/10/16 12:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 16-Jun-16

Client: ERM, Inc
Work Order: 1606458
Project: Cytec Industries (0242896)

QC BATCH REPORT

Batch ID: 87139 Instrument ID TDS Method: A2540 C-97

MBLK	Sample ID: MBLK-87139-87139				Units: mg/L		Analysis Date: 06/10/16 12:02 PM			
Client ID:	Run ID: TDS_160610A				SeqNo: 3870081		Prep Date: 06/10/16		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids ND 10

LCS	Sample ID: LCS-87139-87139				Units: mg/L		Analysis Date: 06/10/16 12:02 PM			
Client ID:	Run ID: TDS_160610A				SeqNo: 3870080		Prep Date: 06/10/16		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 482 10 495 0 97.4 80-120 0

DUP	Sample ID: 1606379-02G DUP				Units: mg/L		Analysis Date: 06/10/16 12:02 PM			
Client ID:	Run ID: TDS_160610A				SeqNo: 3870057		Prep Date: 06/10/16		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 1176 20 0 0 0 0-0 1190 1.18 10

DUP	Sample ID: 1606379-03G DUP				Units: mg/L		Analysis Date: 06/10/16 12:02 PM			
Client ID:	Run ID: TDS_160610A				SeqNo: 3870059		Prep Date: 06/10/16		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 788 20 0 0 0 0-0 802 1.76 10

The following samples were analyzed in this batch:

1606458-01B

Client: ERM, Inc
Work Order: 1606458
Project: Cytec Industries (0242896)

QC BATCH REPORT

Run ID: R189648 Instrument ID IC3 Method: SW9056A

MBLK		Sample ID: CCB/MBLK-R189648				Units: mg/L		Analysis Date: 06/15/16 08:23 AM		
Client ID:		Run ID: IC3_160615A				SeqNo: 3877646		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate	ND	1.0								

LCS		Sample ID: LCS-R189648				Units: mg/L		Analysis Date: 06/15/16 08:43 AM			
Client ID:		Run ID: IC3_160615A				SeqNo: 3877647		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Sulfate	9.997	1.0	10	0	100	85-110	0				

MS		Sample ID: 1606797-18D MS				Units: mg/L		Analysis Date: 06/15/16 09:24 AM			
Client ID:		Run ID: IC3_160615A				SeqNo: 3877649		Prep Date:		DF: 5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate		63.03	5.0	50	11.49	103	75-125	0			

MSD		Sample ID: 1606797-18D MSD				Units: mg/L		Analysis Date: 06/15/16 09:44 AM			
Client ID:		Run ID: IC3_160615A				SeqNo: 3877650		Prep Date:		DF: 5	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfate		63.1	5.0	50	11.49	103	75-125	63.03	0.103	20	

The following samples were analyzed in this batch:

1606458-01A

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Note:

1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. This Chain of Custody is a formal document and ALL information entered has contractual significance.

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 SUITE 1700
 ROLLING MEADOWS, IL 60008
 UNITED STATES US

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 CAO: 100/4350/INET7310
 BILL SENDER

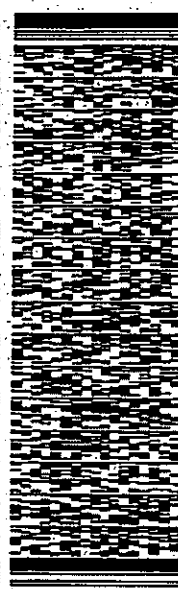
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HOLLAND MI 49424

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Sample Receipt Checklist

Client Name: ERM-ROLLING MEADOWS

Date/Time Received: 08-Jun-16 09:00

Work Order: 1606458

Received by: MEB

Checklist completed by Meghan Broadbent
eSignature

08-Jun-16
Date

Reviewed by: Tam Bramish
eSignature

08-Jun-16
Date

Matrices: water

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Temperature(s)/Thermometer(s):

4.0/4.0 SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

6/8/2016 1:20:07 PM

Water - VOA vials have zero headspace?

Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt?

Yes ☒ No ☐ N/A ☐

pH adjusted?

Yes ☐ No ☒ N/A ☐

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

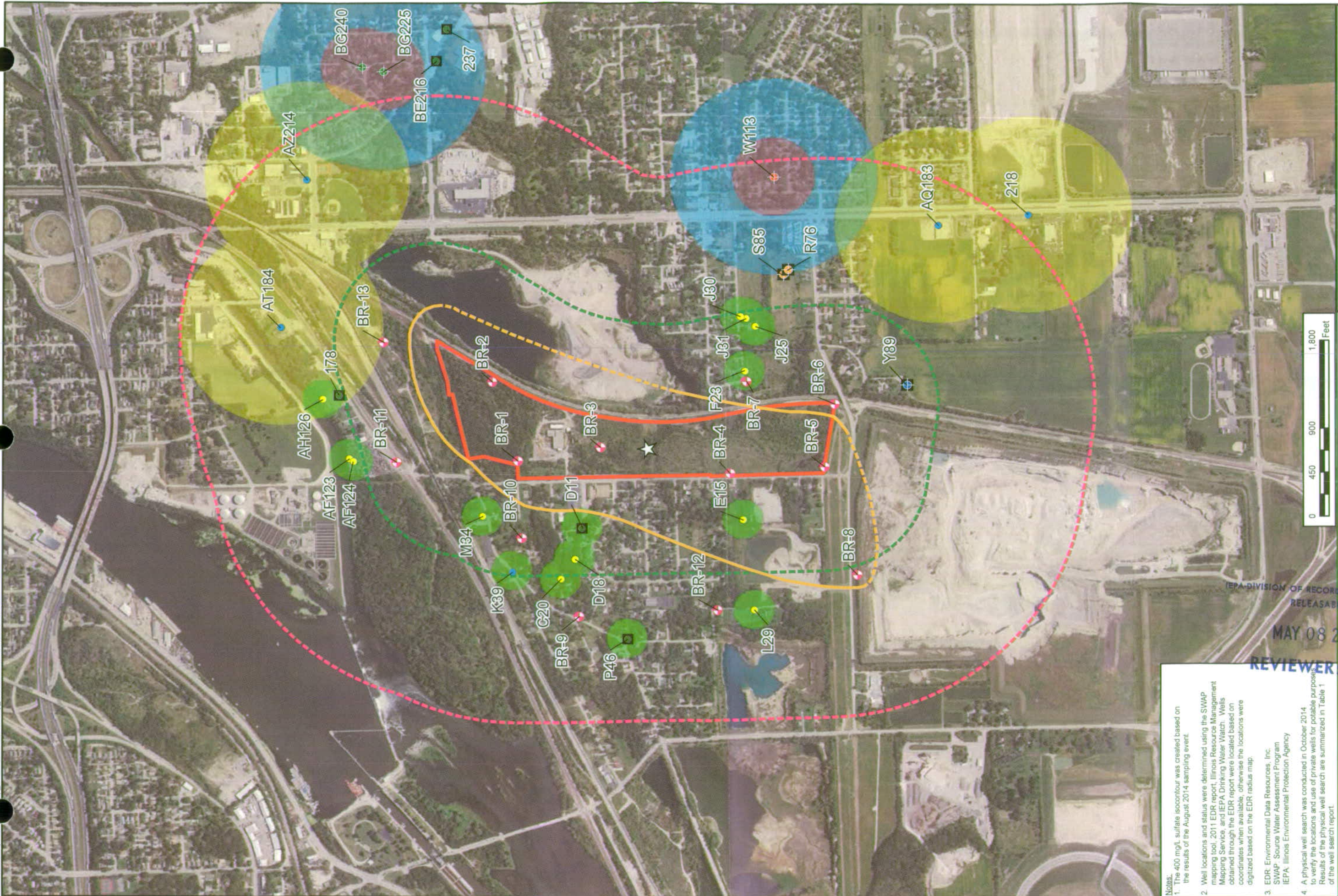
Regarding:

Comments:

CorrectiveAction:

Attachment 3

Revised Figure 2: Potable Water Supply Well Survey



Notes:
1. The 400 mg/L sulfate isocountour was created based on the results of the August 2014 sampling event.
2. Well locations and status were determined using the SWAP mapping tool, 2011 EDR report, Illinois Resource Management Mapping Service, and IEPA Drinking Water Watch. Wells obtained through the EDR report were located based on coordinates when available, otherwise the locations were digitized based on the EDR radius map.
3. EDR: Environmental Data Resources, Inc.
SWAP: Source Water Assessment Program
IEPA: Illinois Environmental Protection Agency
4. A physical well search was conducted in October 2014 to verify the locations and use of private wells for potable purposes. Results of the physical well search are summarized in Table 1 of the well search report.

- Legend**
- Site Location
 - Approximate Location of Monitoring Well
 - Southeast Joliet Sanitary District-Reserve Water Supply Well (Closed and Abandoned)
 - Modern MHP Community Water Supply Well (Inactive)
 - Southeast Joliet Sanitary District-Reserve Water Supply Well (Active)
 - Joliet/Clearview Subdivision Community Water Supply Well (Active)
 - Private and/or Semi-Private (Assumed Potable) Water Wells (EDR, SWAP, ISGS)
 - Non-CWS Well (Inactive or Decommissioned)
 - Non-CWS Well (Assumed Active)

- 1,000 Feet from the Remediation Site Boundary
- 2,500 Feet from the Remediation Site Boundary
- Approximate Extent of 2014/2015 Sulfate Concentrations Greater than 400 mg/L (Dashed where inferred)
- Remediation Site Boundary
- 400 - Foot Minimum Set-Back Zone for CWS
- Non-CWS Phase I Wellhead Protection Area
- CWS Phase I Wellhead Protection Area
- 200 - Foot Minimum Set-Back Zone for Private Well

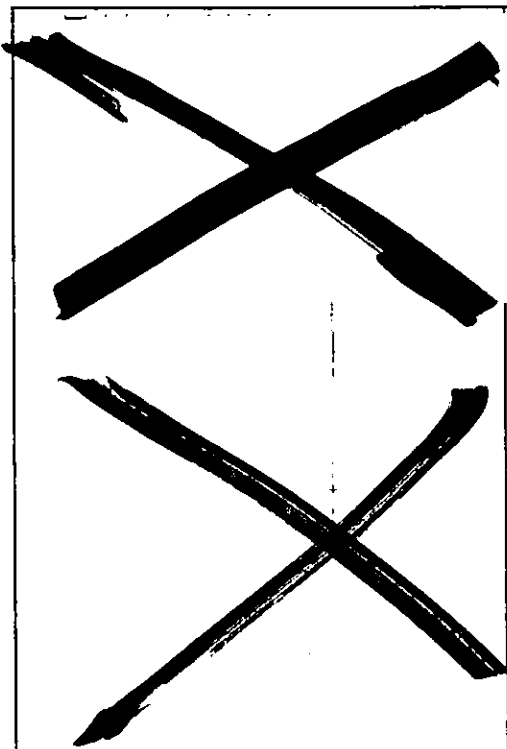


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Attachment 4

**June/July 2015 Private Potable Well Sampling Results
Table, Figure and Laboratory Data Package**

Table 14-1
2015 Private Potable Well Sampling Results
Cytec Industries Inc. - Joliet Site
Joliet, Illinois

Owner's Name	Well Location	Well I.D.	Results (Sulfate, mg/L)
		C20	83
		--	87
		--	77
		--	100
		--	150
		M34	250
		--	200
		--	170
		D18	170
		E15	610
		D11	NS

Notes

mg/L = milligrams per liter or parts per million (ppm)

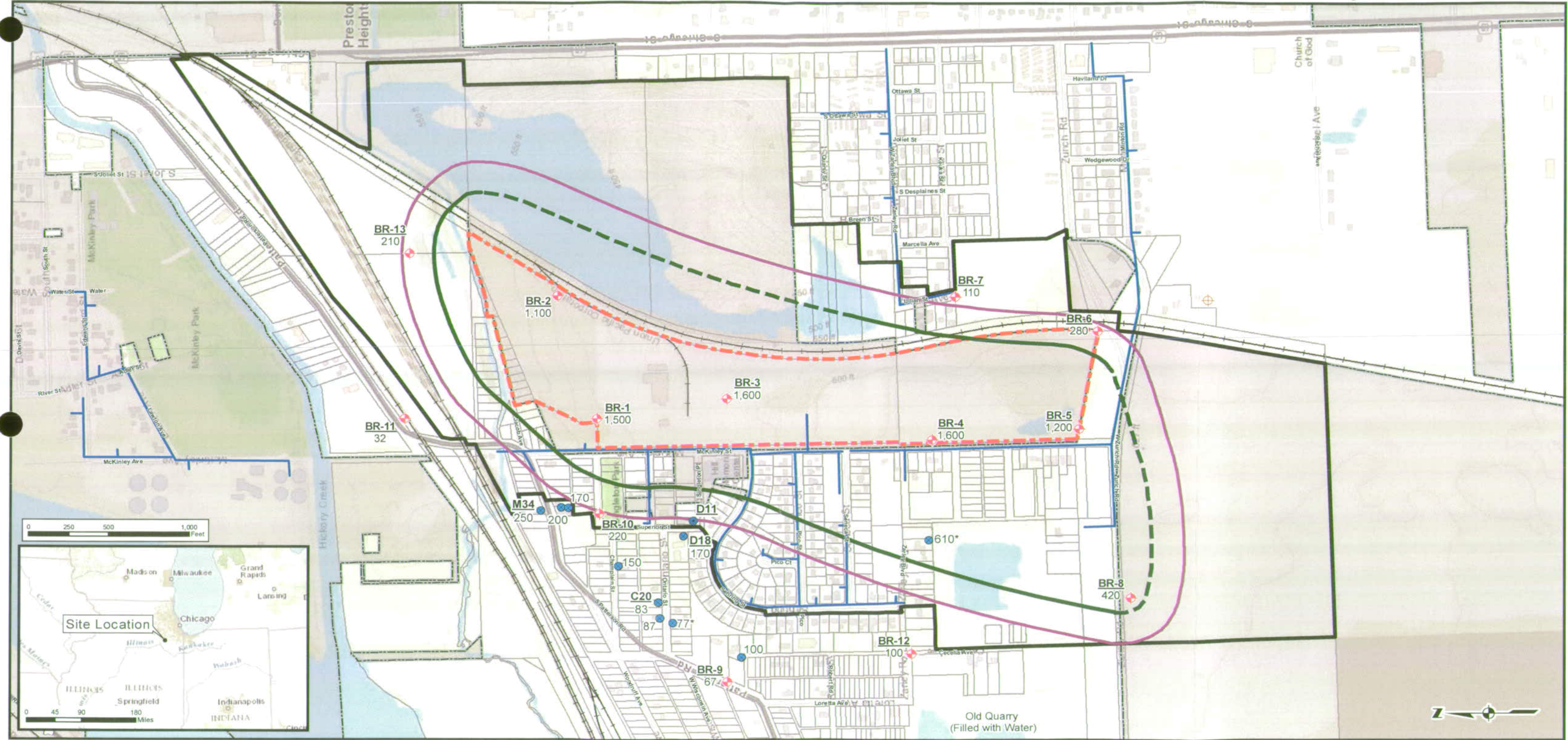
NS = Not sampled; could not sample 411 Singleton because the house is abandoned and there is no running water.

Bold result indicates a sulfate concentration greater than the 400 ppm groundwater quality standard for sulfate.

All wells sampled on 6/17/2015, except the well at 500 Ontario St. which was sampled on 7/10/2015, and the well at 603 W. Zarley Ave. which was sampled on 07/24/2015.

--- = well not identified in the EDR or other databases; see Attachment 4 figure for well locations.

Groundwater Sulfate Results and Proposed Groundwater Ordinance Boundary



Legend

- Site Boundary
- Approximate Extent of 2014/2015 Sulfate Concentrations Greater Than 400 mg/L (Dashed where Inferred)
- 200 ft Buffer from the Approximate Extent of 2014/2015 Sulfate Concentrations Greater than 400 mg/L
- Proposed Groundwater Ordinance Boundary
- Southeast Joliet Sanitary District Reserve Water Supply Well (Closed and Abandoned)
- Approximate Location of Monitoring Well
- Sampled Residential Potable Water Well
- Unsampled Residential Potable Water Well
- Sulfate Groundwater Concentration (mg/L)
- * Indicates Residential Well Location Uncertain
- Municipal Water Line
- Parcel Boundary
- City of Joliet Municipal Boundary
- Railroad

Notes:
1.) MONITORING WELL SULFATE DATA FROM AUGUST 2014
2.) RESIDENTIAL SULFATE WELL DATA FROM JUN/JUL 2015
3.) WELL BR-13 SULFATE DATA FROM JUNE 2016



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-1
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:08:48 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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The
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www.testamericainc.com

EPA DIVISION OF RECORDS MANAGEMENT
ESTABLISHED

MAY 08 2017

REVIEWER: EMI

The test results in this report meet all 2003 NELAP and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Job ID: 500-97534-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-1

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Client Sample ID: -061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	83	B	25	10	mg/L	5		SM 4500 SO4 E	Total/NA

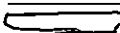
This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-1	 061715	Water	06/17/15 09:55	06/18/15 12:10

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-1

Client Sample ID: 061715

Lab Sample ID: 500-97534-1

Date Collected: 06/17/15 09:55

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	83	B	25	10	mg/L			06/24/15 02:45	5

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-1	-061715	Total/NA	Water	SM 4500 SO4 E	
500-97534-1 MS	-061715	Total/NA	Water	SM 4500 SO4 E	
500-97534-1 MSD	061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-1

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3
Matrix: Water
Analysis Batch: 293075

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4
Matrix: Water
Analysis Batch: 293075

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

Lab Sample ID: 500-97534-1 MS
Matrix: Water
Analysis Batch: 293075

Client Sample ID: 523 Ontario-061715
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	83	B	200	281		mg/L		99	75 - 125

Lab Sample ID: 500-97534-1 MSD
Matrix: Water
Analysis Batch: 293075

Client Sample ID: 523 Ontario-061715
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Lin
Sulfate	83	B	200	293		mg/L		105	75 - 125	4	20

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Client Sample ID: 061715

Lab Sample ID: 500-97534-1

Date Collected: 06/17/15 09:55

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		5	293075	(Start) 06/24/15 02:45 (End) 06/24/15 02:46	CLB	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-1

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16



(optional)

Report To

Contact: Eric Slater
Company: ERM
Address: 1701 Golf Rd, Ste 1700
Address: Rolling Meadows, IL
Phone: 847-258-8900
Fax: 847-258-8901
E-Mail: eric.slater@erm.com

(optional)

Bill To

Contact: Eric Slater
Company: ERM
Address: 1701 Golf Rd, Ste 1700
Address: Rolling Meadows, IL
Phone: 847-258-8900
Fax: 847-258-8901
E-Mail: eric.slater@erm.com

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number: _____

Page 1 of 1

Temperature °C of Cooler: 247

Lab ID	MS/MSD	Sample ID	Date	Time	Matrix	# of Containers	Preservative	Parameter	Comments
1			6/17/15	0955	1 RW	X	9 (containing)	Sulfate	
2			6/17/15	1020					
3			6/17/15	1040					
4			6/17/15	1105					
5			6/17/15	1130					
6			6/17/15	1150					
7			6/17/15	1210					
8			6/17/15	1230					

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days)
1 Day ☐ 2 Days ☐ 5 Days ☒ 7 Days ☐ 10 Days ☐ 15 Days ☐ Other ☐

Requested Due Date _____

Sample Disposal
☒ Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Received By P. Neal Date 6/18/15 Time 1005
Received By John Smith Date 6/18/15 Time 1210
Received By _____ Date _____ Time _____

Company ERM Company ERM Company _____

Lab Courier THA
Shipped _____
Hand Delivered _____

Client Comments: Import Sample
rework
wants report per sample

Matrix Key
WW - Wastewater SE - Sediment
W - Water SO - Soil
S - Soil L - Leachate
SL - Sludge WL - Wipe
MS - Miscellaneous DW - Drinking Water
OL - Oil O - Other
A - Air

Lab Comments: _____

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-1

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4''$).	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-2
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:06:13 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Job ID: 500-97534-2

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-2

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Client Sample ID: [REDACTED]-061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	87	B	25	10	mg/L	5		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
d	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-2	61715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Client Sample ID: -061715

Lab Sample ID: 500-97534-2

Date Collected: 06/17/15 10:20

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		5	293075		CLB	TAL CHI
					(Start)	06/24/15 02:48		
					(End)	06/24/15 02:49		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-2

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

(optional)

(optional)

Chain of Custody Record

Lab Job #: 500-97534
Chain of Custody Number: _____
Page 1 of 1
Temperature °C of Cooler: 27

Report To: Eric Slater
Contact: ERM
Company: ERM
Address: 1701 Golf Rd, Ste 1700
Address: Rolling Meadows, IL
Phone: 847-258-8900
Fax: 847-258-8901
E-Mail: eric.slater@erm.com

Client	Client Project #	Preservative	Parameter	# of Containers	Matrix	Sampling Date	Sampling Time	Sample ID	MS/MSD	Lab ID	Comments
ERM	0242896										
Project Name	Cytec										
Project Location/State	Joliet, IL										
Sampler	Mike Belke										
Lab PW	Dick Wright										
Lab ID											
1	-061715	6/17/15	0955	1	PW						
2	-061715	6/17/15	1020								
3	-061715	6/17/15	1040								
4	-061715	6/17/15	1105								
5	-061715	6/17/15	1130								
6	-061715	6/17/15	1150								
7	-061715	6/17/15	1210								
8	-061715	6/17/15	1230								

Turnaround Time Required (Business Days)
 1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other _____
 Requested Due Date _____

Sample Disposal
 Disposal by Lab ☐ Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client ☒

Received By: P. Neal Date: 6/18/15 Time: 1005
 Received By: Shirley Smith Date: 6/18/15 Time: 1210
 Received By: _____ Date: _____ Time: _____

Lab Counter: 77A
 Shipped: _____
 Hand Delivered: _____

Client Comments: 1 report / sample
separate
wants 1 report per sample

Matrix Key
 WW - Wastewater
 W - Water
 S - Soil
 SL - Sludge
 MS - Miscellaneous
 OL - Oil
 A - Air

SE - Sediment
 SO - Soil
 L - Leachate
 WI - Wipe
 DW - Drinking Water
 O - Other

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-2

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-3
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:09:19 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Job ID: 500-97534-3

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-3

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Client Sample ID: XXXXXXXXXX 061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	77	B	25	10	mg/L	5		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",


Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-3	 061715	Water	06/17/15 10:40	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-3

Client Sample ID: -061715

Lab Sample ID: 500-97534-3

Date Collected: 06/17/15 10:40

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	77	B	25	10	mg/L			06/24/15 02:49	5

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-3	-061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Test Sample ID: -061715

Lab Sample ID: 500-97534-3

Date Collected: 06/17/15 10:40

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		5	293075		CLB	TAL CHI
					(Start)	06/24/15 02:49		
					(End)	06/24/15 02:50		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc.
Project/Site: Cytec

TestAmerica Job ID: 500-97534-3

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

(optional)

Report To: Eric Slater
Contact: ERM
Company: ERM
Address: 1701 Golf Rd, Ste 1700
Address: Rolling Meadows, IL
Phone: 847-258-8900
Fax: 847-258-8901
E-Mail: eric.slater@erm.com

(optional)

Bill To: _____
Contact: _____
Company: _____
Address: _____
Address: _____
Phone: _____
Fax: _____

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number: _____

Page 1 of 1

Temperature °C of Cooler: 247

Client	ERM	Client Project #	Preservative	Parameter	Matrix	# of Containers	Sampling Date	Time	Sample ID	MS/MSD	Lab ID	Comments
Project Name	Cytec	Lab Project #										
Project Location/State	Joliet, IL	50011071										
Sampler	Mike Belke	Lab PM										
1							6/17/15	0955	1 PW	X		
2							1020					
3							1040					
4							1105					
5							1130					
6							1150					
7							1210					
8							1230					

Preservative Key
1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Sample Disposal

Turnaround Time Required (Business Days)
1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other

Requested Due Date

Archive for _____ Months

Disposal by Lab ☒ Return to Client ☐

(A fee may be assessed if samples are retained longer than 1 month)

Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	P. Neal	6/18/15	1000	Received By	TA	6/18/15	1005
Relinquished By	Company	Date	Time	Received By	Company	Date	Time
Relinquished By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier

Shipped

Hand Delivered

Client Comments

1 report / sample
separate
wants 1 report per sample

Matrix Key

WW - Wastewater
W - Water
S - Soil
SL - Sludge
MS - Miscellaneous
OL - Oil
A - Air
SE - Sediment
SO - Soil
L - Leachate
WI - Wipe
DW - Drinking Water
O - Other

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-3

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4''$).	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-4
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:09:42 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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results through

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The
Expert**

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Job ID: 500-97534-4

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-4

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Client Sample ID: -061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	100	B	25	10	mg/L	5		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",


Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-4	 061715	Water	06/17/15 11:05	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Client Sample ID:  061715

Lab Sample ID: 500-97534-4

Date Collected: 06/17/15 11:05

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	100	B	25	10	mg/L			06/24/15 02:50	5

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-4

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-4	1-061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-4

Parent Sample ID: -061715

Lab Sample ID: 500-97534-4

Date Collected: 06/17/15 11:05

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		5	293075		CLB	TAL CHI
					(Start)	06/24/15 02:50		
					(End)	06/24/15 02:51		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-4

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

(optional)

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 247

Client	ERM	Client Project #	0242896	Preservative	Parameter	Matrix	Containers	Sampling	Date	Time	Comments
Project Name	Cytec	Lab Project #	50011071								
Project Location/State	Joliet, IL	Lab PM	Mike Belke								
Sampler	Mike Belke										
Lab ID		Sample ID									
1		7-061715	6/17/15	0955	1 PW						
2		7-061715	6/17/15	1020							
3		7-061715	6/17/15	1040							
4		7-061715	6/17/15	1105							
5		7-061715	6/17/15	1130							
6		7-061715	6/17/15	1150							
7		7-061715	6/17/15	1210							
8		7-061715	6/17/15	1230							

Turnaround Time Required (Business Days) 2 Days 5 Days 7 Days 10 Days 15 Days Other

Requested Due Date: 6/18/15

Relinquished By: P. Neal Company: ERM Date: 6/18/15 Time: 1000

Relinquished By: P. Neal Company: ERM Date: 6/18/15 Time: 1210

Relinquished By: P. Neal Company: ERM Date: 6/18/15 Time: 1210

Sample Disposal: ☒ Return to Client ☐ Disposal by Lab ☐ Archive for Months (A fee may be assessed if samples are retained longer than 1 month)

Received By: P. Neal Company: ERM Date: 6/18/15 Time: 1005

Received By: P. Neal Company: ERM Date: 6/18/15 Time: 1210

Received By: P. Neal Company: ERM Date: 6/18/15 Time: 1210

Lab Courier: THA

Shipped: THA

Hand Delivered: THA

Client Comments: 1 report / Sample

Matrix Key: SE - Sediment
SO - Soil
L - Leachate
WI - Wipe
DW - Drinking Water
O - Other

WW - Wastewater
W - Water
S - Soil
SL - Sludge
MS - Miscellaneous
OL - Oil
A - Air

Lab Comments: separate wants 1 report per sample

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-4

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-5
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:10:13 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Job ID: 500-97534-5

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-5

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Client Sample ID: -061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	150	B	50	20	mg/L	10		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

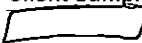
Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-5	 -061715	Water	06/17/15 11:30	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Client Sample ID: 1-061715

Lab Sample ID: 500-97534-5

Date Collected: 06/17/15 11:30

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	150	B	50	20	mg/L	-		06/24/15 02:51	10

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-5

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-5	061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Client Sample ID: XXXXXXXXXX 061715

Lab Sample ID: 500-97534-5

Date Collected: 06/17/15 11:30

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		10	293075		CLB	TAL CHI
					(Start)	06/24/15 02:51		
					(End)	06/24/15 02:52		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-5

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

(optional)

(optional)

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 27

Report To: Bill To

Contact: Eric Slater

Company: ERM

Address: 1701 Golf Rd, Ste 1-200

Address: Rolling Meadows, IL

Phone: 847-258-8900

Fax: 847-258-8901

E-Mail: eric.slater@erm.com

PO/Reference#

Client	ERM	Client Project #	0242896	Preservative	Parameter	# of Containers	Matrix	Sampling Date	Time	Sample ID	MS/MSD	Lab Project #	50011071	Lab PM	Dick Wright	Comments
1						1	PW	6/17/15	0955							
2						1		1020								
3						1		1040								
4						1		1105								
5						1		1130								
6						1		1150								
7						1		1210								
8						1		1230								

Turnaround Time Required (Business Days) 1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other

Sample Disposal

Return to Client

Disposal by Lab

Archive for

Months

(A fee may be assessed if samples are retained longer than 1 month)

Requisitioned By	Company	Date	Time	Received By	Company	Date	Time
Requisitioned By	Company	Date	Time	Received By	Company	Date	Time
Requisitioned By	Company	Date	Time	Received By	Company	Date	Time

Matrix Key

- WW - Wastewater
- W - Water
- S - Soil
- SL - Sludge
- MS - Miscellaneous
- OL - Oil
- A - Air
- SE - Sediment
- SO - Soil
- L - Leachate
- WI - Wipe
- DW - Drinking Water
- O - Other

Client Comments

1 report / Sample
separate wants 1 report per sample

Lab Comments

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-5

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-6
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:10:30 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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results through

Total Access

Have a Question?



Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Certification Summary	12
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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-6

Job ID: 500-97534-6

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-6

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Client Sample ID: -061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	250	B	50	20	mg/L	10		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-6

Method	Method Description	Protocol	Laboratory
SM 4500 SO ₄ E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-6	[REDACTED] 061715	Water	06/17/15 11:50	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Client Sample ID: [REDACTED] I-061715
Date Collected: 06/17/15 11:50
Date Received: 06/18/15 12:10

Lab Sample ID: 500-97534-6
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	250	B	50	20	mg/L			06/24/15 02:54	10

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
■	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-6	061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Client Sample ID: 061715

Lab Sample ID: 500-97534-6

Date Collected: 06/17/15 11:50

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		10	293075		CLB	TAL CHI
					(Start)	06/24/15 02:54		
					(End)	06/24/15 02:55		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-6

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16



(optional)

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number: _____

Page 1 of 1

Temperature °C of Cooler: 27

(optional)

Report To: Eric Slater
Contact: ERM
Company: 1701 Golf Rd, Ste 1-700
Address: Rolling Meadows, IL
Phone: 847-258-8900
Fax: 847-258-8901
E-Mail: eric.slaters@erm.com

Bill To: _____
Contact: _____
Company: _____
Address: _____
Phone: _____
Fax: _____

POB/Reference#

Client	ERM	Client Project #	0242896	Preservative	Parameter	# of Containers	Matrix	Sampling Date	Time	Sample ID	MS/MSD	Lab ID	Lab Project #	Lab PM	Sample	Comments	Preservative Key
Project Name	Cytec																
Project Location/State	Joliet, IL																
Sampler	Mike Belke																
Lab ID																	
1						1	RW	6/17/15	0955								
2									1020								
3									1040								
4									1105								
5									1130								
6									1150								
7									1210								
8									1230								

1. HCL, Cool to 4°
2. H2SO4, Cool to 4°
3. HNO3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn, Cool to 4°
6. NaHSO4
7. Cool to 4°
8. None
9. Other

Turnaround Time Required (Business Days)
1 Day 2 Days 5 Days 7 Days 10 Days 15 Days Other

Sample Disposal
Return to Client ☐ Disposal by Lab ☒

Archive for _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Requisitioned By	Company	Date	Time	Received By	Company	Date	Time
Requisitioned By	P. Neal	6/18/15	1000	Received By	P. Neal	6/18/15	1005
Requisitioned By	Company	Date	Time	Received By	Company	Date	Time
Requisitioned By	P. Neal	6/18/15	1210	Received By	P. Neal	6/18/15	1210
Requisitioned By	Company	Date	Time	Received By	Company	Date	Time
Requisitioned By	Company	Date	Time	Received By	Company	Date	Time

Lab Courier

Shipped

Hand Delivered

Lab Comments:

Client Comments

Matrix Key
WW - Wastewater
W - Water
S - Soil
SL - Sludge
MS - Miscellaneous
OL - Oil
A - Air
SE - Sediment
SO - Soil
L - Leachate
WI - Wipes
DW - Drinking Water
O - Other

1 mm + Sample
separate
wants 1 report per sample

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-6

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-7
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:10:47 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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www.testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Job ID: 500-97534-7

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-7

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Client Sample ID: ~~XXXXXXXXXX~~-061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	200	B	50	20	mg/L	10		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

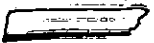
Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-7	 61715	Water	06/17/15 12:10	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Client Sample ID: -061715

Lab Sample ID: 500-97534-7

Date Collected: 06/17/15 12:10

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	200	B	50	20	mg/L			06/24/15 02:55	10

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-7

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-7	1-061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

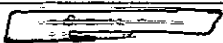
Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Client Sample ID: -061715

Lab Sample ID: 500-97534-7

Date Collected: 06/17/15 12:10

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		10	293075	(Start) 06/24/15 02:55 (End) 06/24/15 02:56	CLB	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-7

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

(optional)

Report To

Contact: Eric Slater

Company:

Address:

Address:

Phone:

Fax:

E-Mail:

Preservative

Parameter

of Containers

Matrix

Sampling Date

Time

Sample ID

MSMSD

Lab Project #

Lab Project #

Lab Project #

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Lab Project #

(optional)

Bill To

Contact:

Company:

Address:

Address:

Phone:

Fax:

E-Mail:

PO/Reference#

Preservative

Parameter

of Containers

Matrix

Sampling Date

Time

Sample ID

MSMSD

Lab Project #

Lab Project #

Lab Project #

Lab Project #

Lab Project #

Lab Project #

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Lab Project #

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 27

- Preservative Key
1. HCL, Cool to 4°
 2. H2SO4, Cool to 4°
 3. HNO3, Cool to 4°
 4. NaOH, Cool to 4°
 5. NaOH/Zn, Cool to 4°
 6. NaHSO4
 7. Cool to 4°
 8. None
 9. Other

Comments

Turnaround Time Required (Business Days) 3rd
 1 Day ☐ 2 Days ☐ 5 Days ☐ 7 Days ☒ 10 Days ☐ 15 Days ☐ Other ☐
 Requested Due Date _____

Relinquished By P. Neal Company TA Date 6/18/15 Time 1005
 Relinquished By P. Neal Company TA Date 6/18/15 Time 1210
 Relinquished By P. Neal Company TA Date 6/18/15 Time 1210

Lab Courier

Shipped

Hand Delivered

Lab Comments:

Client Comments

1 report / sample

separate
wants 1 report per sample

- Matrix Key
- WW - Wastewater
 - W - Water
 - S - Soil
 - SL - Sludge
 - MS - Miscellaneous
 - OL - Oil
 - A - Air
 - SE - Sediment
 - SO - Soil
 - L - Leachate
 - WI - Wipe
 - DW - Drinking Water
 - O - Other

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-7

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-97534-8
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
6/24/2015 3:11:09 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytéc

TestAmerica Job ID: 500-97534-8

Job ID: 500-97534-8

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-97534-8

Comments

No additional comments.

Receipt

The samples were received on 6/18/2015 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7° C.

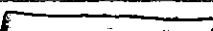
General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Client Sample ID:  1-061715

Lab Sample ID: 500-97534

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	170	B	50	20	mg/L	10		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-8

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-97534-8	XXXXXXXXXX 1-061715	Water	06/17/15 12:30	06/18/15 12:10

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Client Sample ID: -061715

Lab Sample ID: 500-97534-8

Date Collected: 06/17/15 12:30

Matrix: Water

Date Received: 06/18/15 12:10

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	170	B	50	20	mg/L			06/24/15 02:56	10

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)


QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

General Chemistry

Analysis Batch: 293075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-97534-8	 -061715	Total/NA	Water	SM 4500 SO4 E	
LCS 500-293075/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-293075/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-97534-8

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-293075/3

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			06/24/15 02:42	1

Lab Sample ID: LCS 500-293075/4

Matrix: Water

Analysis Batch: 293075

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.6		mg/L		103	80 - 120

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Client Sample ID: -061715

Lab Sample ID: 500-97534-8

Date Collected: 06/17/15 12:30

Matrix: Water

Date Received: 06/18/15 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		10	293075		CLB	TAL CHI
					(Start)	06/24/15 02:56		
					(End)	06/24/15 02:57		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-97534-8

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16



(optional) Report To

Contact:

Company:

Address:

Address:

Phone:

Fax:

(optional) Bill To

Contact:

Company:

Address:

Address:

Phone:

Fax:

(optional)

Chain of Custody Record

Lab Job #: 500-97534

Chain of Custody Number:

Page 1 of 1

Temperature °C of Cooler: 247

E-Mail: ERIC.Slater@COC.com PO#Reference#

Lab ID	MS/MSD	Sample ID	Date	Time	# of Containers	Matrix	Preservative	Parameter	Comments	Preservative Key 1. HCL, Cool to 4° 2. H2SO4, Cool to 4° 3. HNO3, Cool to 4° 4. NaOH, Cool to 4° 5. NaOH/Zn, Cool to 4° 6. NaHSO4 7. Cool to 4° 8. None 9. Other
1		061715	6/17/15	0955	1	PW				
2		061715	6/17/15	1020	1					
3		061715	6/17/15	1040	1					
4		061715	6/17/15	1105	1					
5		061715	6/17/15	1130	1					
6		061715	6/17/15	1150	1					
7		061715	6/17/15	1210	1					
8		061715	6/17/15	1230	1					

Turnaround Time Required (Business Days) 3rd
Requested Due Date 6/18/15 15 Days 10 Days 7 Days 5 Days 2 Days 1 Day

Sample Disposal
☒ Return to Client
☐ Disposal by Lab

Archive for 6/18/15 Months

(A fee may be assessed if samples are retained longer than 1 month)

Relinquished By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1000</u>	Received By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1005</u>
Relinquished By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1210</u>	Received By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1210</u>
Relinquished By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1210</u>	Received By <u>P. Neal</u> Company <u>TA</u> Date <u>6/18/15</u> Time <u>1210</u>

<p>Matrix Key</p> <p>WW - Wastewater W - Water S - Soil SL - Sludge MS - Miscellaneous OL - Oil A - Air</p>	<p>Client Comments</p> <p>1 report / Sample separate wants 1 report per sample</p>	<p>Lab Comments:</p>
---	--	----------------------

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-97534-8

Login Number: 97534

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ ($1/4"$).	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-98465-1
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
7/15/2015 12:36:55 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

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Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98465-1

Job ID: 500-98465-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-98465-1

Comments

No additional comments.

Receipt

The sample was received on 7/10/2015 1:00 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7° C.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cyttec

TestAmerica Job ID: 500-98465-1

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec


TestAmerica Job ID: 500-98465-1

Sample ID	Client Sample ID	Matrix	Collected	Received
500-98465-1		Water	07/10/15 09:20	07/10/15 13:00

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98465-1

Client Sample ID: 

Lab Sample ID: 500-98465

Date Collected: 07/10/15 09:20

Matrix: Water

Date Received: 07/10/15 13:00

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	170	B	50	20	mg/L			07/15/15 10:08	10

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98465-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RR	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98465-1

General Chemistry

Analysis Batch: 295643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-98465-1		Total/NA	Water	SM 4500 SO4 E	
500-98465-1 MS		Total/NA	Water	SM 4500 SO4 E	
500-98465-1 MSD		Total/NA	Water	SM 4500 SO4 E	
LCS 500-295643/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-295643/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98465-1

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-295643/3

Matrix: Water

Analysis Batch: 295643

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			07/15/15 09:55	1

Lab Sample ID: LCS 500-295643/4

Matrix: Water

Analysis Batch: 295643

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	19.2		mg/L		96	80 - 120

Lab Sample ID: 500-98465-1 MS

Matrix: Water

Analysis Batch: 295643

Client Sample ID: 500 Ontario

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	170	B	400	570		mg/L		101	75 - 125

Lab Sample ID: 500-98465-1 MSD

Matrix: Water

Analysis Batch: 295643

Client Sample ID: 500 Ontario

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	170	B	400	632		mg/L		117	75 - 125	10	20

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98465-1

Client Sample ID:

Lab Sample ID: 500-98465

Date Collected: 07/10/15 09:20

Matrix: Water

Date Received: 07/10/15 13:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		10	295643	(Start) 07/15/15 10:08 (End) 07/15/15 10:09	CLB	TAL CHI

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98465-1

Laboratory: TestAmerica Chicago

certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-98465-1

Login Number: 98465

List Source: TestAmerica Chicago

List Number: 1

Creator: Kelsey, Shawn M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

TestAmerica Job ID: 500-98991-1
Client Project/Site: Cytec

For:
Environmental Resources Management Inc
One Continental Towers
1701 Golf Road, Suite I-700
Rolling Meadows, Illinois 60008

Attn: Mr. Eric J Slater



Authorized for release by:
7/30/2015 2:14:36 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

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Receipt Checklists	14

Case Narrative

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Job ID: 500-98991-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative
500-98991-1

Comments

No additional comments.

Receipt

The sample was received on 7/24/2015 12:30 PM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.


General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98991-1

Client Sample ID: 

Lab Sample ID: 500-98991

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	610	B	100	40	mg/L	20		SM 4500 SO4 E	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

Client: Environmental Resources Management Inc
Project/Site: Cytex

TestAmerica Job ID: 500-98991-1

Method	Method Description	Protocol	Laboratory
SM 4500 SO4 E	Sulfate, Total	SM	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater",


Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-98991-1		Water	07/24/15 08:50	07/24/15 12:30

Client Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Client Sample ID: [REDACTED]

Lab Sample ID: 500-98991-1

Date Collected: 07/24/15 08:50

Matrix: Water

Date Received: 07/24/15 12:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	610	B	100	40	mg/L			07/30/15 10:29	20

Definitions/Glossary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

General Chemistry

Analysis Batch: 297849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-98991-1		Total/NA	Water	SM 4500 SO4 E	
LCS 500-297849/4	Lab Control Sample	Total/NA	Water	SM 4500 SO4 E	
MB 500-297849/3	Method Blank	Total/NA	Water	SM 4500 SO4 E	

QC Sample Results

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Method: SM 4500 SO4 E - Sulfate, Total

Lab Sample ID: MB 500-297849/3

Matrix: Water

Analysis Batch: 297849

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.65	J	5.0	2.0	mg/L			07/30/15 10:20	1

Lab Sample ID: LCS 500-297849/4

Matrix: Water

Analysis Batch: 297849

Client Sample ID: Lab Control Sample

Prep Type: Total/NA


Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	18.1		mg/L		91	80 - 120

TestAmerica Chicago

Lab Chronicle

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Parent Sample ID: 

Lab Sample ID: 500-98991-1

Date Collected: 07/24/15 08:50

Matrix: Water

Date Received: 07/24/15 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4500 SO4 E		20	297849		CLB	TAL CHI
					(Start)	07/30/15 10:29		
					(End)	07/30/15 10:30		

Laboratory References:

TAL CHI = TestAmerica Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

TestAmerica Chicago

Certification Summary

Client: Environmental Resources Management Inc
Project/Site: Cytec

TestAmerica Job ID: 500-98991-1

Laboratory: TestAmerica Chicago

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Illinois	NELAP	5	100201	04-30-16

Login Sample Receipt Checklist

Client: Environmental Resources Management Inc

Job Number: 500-98991-1

Login Number: 98991

List Source: TestAmerica Chicago

List Number: 1

Creator: Scott, Sherri L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment 5

Property Legal Description

Property Identification / Legal Description
Cytec Industries Inc. – Joliet Facility
1306 McKinley Avenue
Joliet, Illinois 60436

Land Plot 21 and 28 south of Patterson Road between McKinley Avenue and the ICG Railroad lines

THE WHOLE OF THAT PART OF THE SOUTH-EAST QUARTER (S.E. 1/4) OF AND IN SECTION TWENTY-ONE (21) IN TOWNSHIP THIRTY-FIVE (35) NORTH, RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN, SITUATED IN THE TOWN OF JOLIET, WHICH LIES WEST OF THE RIGHT-OF-WAY OF THE CHICAGO AND ALTON RAILROAD COMPANY EXTENDING THROUGH SAID QUARTER SECTION, EXCEPTING THEREFROM THAT CERTAIN TRACT DESCRIBED BY METES AND BOUNDS, AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF THE SOUTH EAST QUARTER (S.E. 1/4) OF SAID SECTION TWENTY-ONE (21), RUN THENCE EAST EIGHTEEN CHAINS AND FIFTY LINKS, RUN THENCE SOUTH ONE DEGREE, FIFTEEN MINUTES EAST SIXTY-THREE LINKS, RUN THENCE IN A SOUTHWESTERLY DIRECTION ALONG A STRAIGHT LINE TO A POINT ON THE NORTH AND SOUTH CENTER LINE OF SAID SECTION TWENTY-ONE (21) WHICH IS SEVEN CHAINS AND EIGHTY-EIGHT LINKS SOUTH OF THE SAID NORTH WEST CORNER OF SAID QUARTER SECTION AND RUN THENCE NORTH TO THE LAST ABOVE MENTIONED PLACE OF COMMENCEMENT. THE ABOVE CONVEYED REAL ESTATE BEING SOMETIMES ALSO KNOWN AND DESCRIBED AS LOT SEVEN (7) IN COUNTY CLERK'S SUBDIVISION OF PART OF THE SOUTH HALF (S 1/2) OF SECTION TWENTY-ONE (21) IN TOWNSHIP THIRTY-FIVE (35) NORTH, RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN, IN THE TOWN OF JOLIET, WILL COUNTY, ILLINOIS

ALL THAT PART OF LOT SIX (6), IN COUNTY CLERK'S SUBDIVISION OF PART OF THE SOUTH-HALF (S 1/2) OF SECTION TWENTY-ONE (21) IN TOWNSHIP THIRTY-FIVE (35) NORTH, AND OF RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN, FURTHER LOCATED IN THE SAID TOWN OF JOLIET, WHICH LIES EAST OF THE EAST LINE OF LOT NINE (9), PROJECTED NORTHERLY TO THE NORTH LINE OF THE SOUTH-EAST QUARTER (S.E. 1/4) OF SAID SECTION TWENTY-ONE (21) AND PROJECTED ALSO SOUTHERLY TO THE CENTER LINE OF SUGAR CREEK, A NATURAL WATER COURSE, OF AND IN HOOKS' SUBDIVISION OF PART OF THE SOUTH-EAST QUARTER (S.E. 1/4) OF SECTION TWENTY-ONE (21), IN TOWNSHIP THIRTY-FIVE (35) NORTH, RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN, IN JOLIET, WILL COUNTY, ILLINOIS, RECORDED IN PLAT BOOK 19, ON PAGE 42, IN THE OFFICE OF THE RECORDER OF DEEDS OF SAID COUNTY, AND (8) THE WEST LINE OF LOT 27 OF AND IN SAID HOOKS SUBDIVISION PROJECTED NORTHWESTERLY ALONG A STRAIGHT LINE TO THE SAID CENTER LINE OF SAID SUGAR CREEK, EXCEPTING THEREFROM THE FOLLOWING DESCRIBED REAL ESTATE TO WIT:

LOT EIGHT (8) IN HOOKS SUBDIVISION OF PART OF THE SOUTHEAST QUARTER (S.E. 1/4) OF AND IN SECTION TWENTY-ONE (21) IN TOWNSHIP THIRTY-FIVE (35) NORTH, AND IN RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN, THE ABOVE DESCRIBED LAND BEING ALSO DESCRIBED AS FOLLOWS: COMMENCING AT A POINT IN THE NORTH LINE OF THE SOUTH-EAST QUARTER (S.E. 1/4) OF SAID SECTION TWENTY-ONE (21), IN THE SAID TOWN OF JOLIET, AT A POINT TWELVE HUNDRED TWENTY-ONE (1221) FEET EAST OF THE CENTER OF SAID SECTION TWENTY-ONE (21); RUN THENCE WEST ALONG THE NORTH LINE OF THE SAID SOUTH-EAST QUARTER (S.E. 1/4) OF SAID SECTION TWENTY-ONE (21), SEVEN HUNDRED EIGHTY-SIX AND SIX TENTHS (786.6) FEET; RUN THENCE SOUTHERLY ALONG A STRAIGHT LINE TO THE NORTHEAST CORNER OF LOT NINE (9) IN SAID HOOKS SUBDIVISION OF PART OF THE SAID SOUTH-EAST QUARTER (S.E. 1/4) OF SAID SECTION TWENTY-ONE (21); RUN THENCE SOUTHERLY ALONG THE EAST LINE OF SAID LOT NINE (9) TO THE CENTER OF SUGAR CREEK, A NATURAL WATER COURSE FLOWING SOUTHWESTERLY, WESTERLY AND NORTHWESTERLY THROUGH SAID HOOKS SUBDIVISION; RUN THENCE WESTERLY AND/OR DOWN STREAM ALONG THE CENTER LINE OF SAID SUGAR CREEK TO A POINT WHERE THE WEST LINE OF LOT TWENTY-SEVEN (27) IN SAID HOOKS SUBDIVISION, PROJECTED NORTHWESTERLY ALONG A STRAIGHT LINE WOULD INTERSECT THE SAID CENTER LINE OF

CONTINUED ON ATTACHED PAGE

SAID SUGAR CREEK; RUN THENCE SOUTHEASTERLY ALONG THE WEST LINE OF SAID LOT TWENTY-SEVEN (27), TO THE SOUTHERLY LINE OF SAID HOOKS SUBDIVISION; RUN THENCE NORTHEASTERLY ALONG THE SOUTHERLY LINE OF SAID HOOKS' SUBDIVISION TO THE SOUTHEAST CORNER THEREOF; AND RUN THENCE NORTH ALONG THE EAST LINE OF SAID HOOKS' SUBDIVISION TO THE PLACE OF BEGINNING, EXCEPTING THEREFROM THE FOLLOWING DESCRIBED REAL ESTATE TO WIT: LOT EIGHT (8) IN HOOKS' SUBDIVISION OF PART OF THE SOUTHEAST QUARTER (S.E. 1/4) OF AND IN SECTION TWENTY-ONE (21) IN TOWNSHIP THIRTY-FIVE (35) NORTH, AND IN RANGE TEN (10) EAST OF THE THIRD PRINCIPAL MERIDIAN AND EXCEPT; LOTS 1 THROUGH 7, BOTH INCLUSIVE IN HOOKS' SUBDIVISION OF PART OF THE SOUTHEAST 1/4 OF AND IN SECTION 21, TOWNSHIP 35 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, AS CONTAINED IN A DEED FROM AMERICAN CYANAMED COMPANY TO THE TOWN OF JOLIET RECORDED JANUARY 15, 1973 AS DOCUMENT R73-1223.

AND

ALL THAT PART OF THE NORTHWEST QUARTER (NW 1/4) OF THE NORTHEAST QUARTER (NE 1/4), LYING WEST OF THE WEST RIGHT OF WAY LINE OF THE CHICAGO & ALTON RAILROAD COMPANY (NOW GULF, MOBILE & OHIO RAILROAD COMPANY) AND NORTH OF THE PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS RIGHT OF WAY, OF SECTION TWENTY-EIGHT (28), IN TOWNSHIP THIRTY-FIVE (35) NORTH, RANGE TEN (10), EAST OF THE THIRD PRINCIPAL MERIDIAN,

AND

LOTS 25 AND 26 IN HOOKS' SUBDIVISION, A SUBDIVISION OF PART OF THE SOUTHEAST 1/4 OF SECTION 21, TOWNSHIP 35 NORTH, RANGE 10, EAST OF THE THIRD PRINCIPAL MERIDIAN, IN WILL COUNTY, ILLINOIS.

PERMANENT TAX NUMBER: 07-21-403-019

07-28-200-001

07-21-403-008

07-21-403-009

07-21-403-010

07-21-403-011

07-21-403-012

07-21-403-013

07-21-403-014

07-21-403-015

07-21-403-016

07-21-403-017

Attachment 6

Community Relations Plan and Fact Sheet

CYTEC-JOLIET COMMUNICATIONS PLAN
Expanded Community Relations Activities
May 2015

SITE BACKGROUND INFORMATION

During the years of operation by Superior Chemical and American Cyanamid, the site at 1306 McKinley Avenue, produced dry alum in various grades, including ammonia alum, potash alum and iron-free alum. The plant also produced hydrochloric and sulfuric acids. American Cyanamid purchased the site and operated it from 1931 until 1995, when they transferred ownership to Cytec Industries Inc. (Cytec). Cytec sold the property in 2003 but retained certain remedial and monitoring obligations as part of that sale. Cytec began a voluntary investigation and clean-up activities at the site in 1995.

In 1999, the company conducted grading of the impoundments to improve storm water runoff. This was done to decrease infiltration of precipitation into the impoundments and to reduce leaching. Cytec also installed monitoring wells at that time to understand what, if any, impact the site could have on groundwater in the area. In 2000 and 2001, additional monitoring wells were installed and sampled. In 2003, Cytec began a groundwater monitoring program of the site, which is on-going.

All work is overseen by the Illinois Environmental Protection Agency (IEPA).

COMMUNITY FACTS AND INFORMATION

The hub of activity in the community is Mt. Zion Baptist Church, which has been in the community for 60 years. There are no schools in the immediate area. The site sits within the Joliet city limits; however, several of the properties are outside the municipality. This portion of Joliet rests in Will County. The incorporated area is in District 5 on the Joliet City Council.

WELLS BEING SAMPLED FOR CONFIRMATION

The wells planned for confirmation sampling purposes are identified in the attached Table 1. The existence of some of these wells still needs to be verified in the field.

WELLS TO BE SAMPLED POTENTIALLY FOR 200-FOOT SETBACK

The expanded list of wells for potential sampling is provided in the attached Table 2.

MAP OF SITE AND ADJACENT COMMUNITY

A map that outlines the site and the adjacent community is provided as an attachment.

AREAS OF INTERESTS AS NOTED BY STAKEHOLDERS

When community interviews were conducted by the project team, stakeholders stated they expected residents and stakeholders to have questions and comments. Each will be addressed in all outreach materials and communications. Those questions to anticipate:

- Why is the work necessary?
- What are sulfates?
- How will this work be conducted?
- What will be done if action must be taken?
- Are there health effects from sulfates?
- How will information be shared with the residents?
- If a residence has to be placed on public water, how much time will that take once the results of the sampling are known?
- What will be done for residents until the public water supply can be provided?
- Can the water be used for bathing and washing?

GOALS

Cytex and its project team will seek to establish direct contact with affected property owners and tenants (if applicable) to discuss sampling procedures/results, to answer all questions, and to address concerns. The team will engage in transparent discussions with key stakeholders (affected residents, local community leaders, elected officials). Project facts will be communicated to stakeholders in a proactive manner through various means which meet the communication needs of the community and the requirements of the IEPA. The team is committed to responding promptly and directly to public statements and inquiries. The team will provide a process for project inquiries that delivers fast, courteous and factual answers and information.

CONTACT LISTS – All lists are attached.

- Specific Stakeholders
 - Residents
 - A comprehensive contact list of property owners and/or residents within the affected groundwater area
 - Key Stakeholders
 - Mt. Zion Baptist Church (Pastor David Latimore)
 - Wholly Truth Church (Rev. Naomi O'Bryant)
 - Government officials serving the local area, county, state and federal

- ✓ Office of the Mayor of Joliet (Thomas Giarrante)
- ✓ Office of the City Manager of Joliet (Jim Hock)
- ✓ Councilman from District 5 (Terry Morris)
- ✓ Councilwoman at Large (Bettye Gavin)
- ✓ Office of the Will County Executive (Lawrence Walsh)
- ✓ Office of Will County Health Department (John Cicero)
- ✓ Office of Will County Department of Land Use (Deal Olson, Curt Paddock)
- ✓ Will County Board (Denise Winfrey, district representative to board)
- ✓ Federal and State Representatives (Congress and Assembly)

DELIVERABLES

The intent is to ensure communications is ongoing throughout the process. Tools to inform the public include factsheets, an information session, information repositories and continuous contact with the community. Specifically, the team will deliver:

- Project factsheet developed for distribution.
- Creation of web-based repository to be housed by Cytec.
- Establish a repository at the Joliet Public Library.
- Calls and/or letters to tenants explaining need to sample.
- Meeting with Pastor Latimore to notify of sampling.
- Meeting with city and county to notify of sampling needs and potential request for ordinance.
- Factsheet to properties.
- Factsheet to adjacent community and key governmental contacts as required by IEPA.
- Communication of results to tenants when sampling and analysis is completed.
- Communicate sampling results to city and county contacts. Explain steps forward.
- Notice to residents of information session to share sampling data and answer questions immediately following communication to residents.
- Host Information session for adjacent community post data receipt and explain path forward.
- Revisit communication plan needs after data results are received to determine further communication activities.

Project Fact Sheet and Contact Information

June 2015

Dear Resident:
You are receiving this as part of the Illinois Community Right to Know Law. The law requires property owners be informed when groundwater beneath property contains chemical constituents in excess of the Illinois Class I groundwater standards. The notice is required even when the property is on a public water supply, and the groundwater is not being used as a source of drinking water. The material present in groundwater is sulfates. The standard for Class I groundwater for sulfates is 400 parts per million (ppm). Details about the material are found on Page 3 of this fact sheet. A map is on Page 2. Details about this topic are outlined in this publication. Contact information for questions or concerns can be found on Page 4.

Important Points of Interest:

- ⇒ Well sampling to be conducted on select properties.
- ⇒ Work to be conducted in coming weeks.
- ⇒ Information to be shared with residents.
- ⇒ Contact provided for more information about work.

Work Related to Former Industrial Site on McKinley Avenue Underway in Community

Site History

Cytec Industries is responsible for cleanup at the former American Cyanamid site, located at 1306 McKinley Avenue and operated from 1931 until 2003.

The facility was constructed by Superior Chemical in 1921.

Cytec sold the property in 2003 but retained remedial and monitoring obligations as part of that sale.

Previous Activities

Cytec Industries began a voluntary investigation and clean-up activities at the site in 1995. The work was under the Illinois EPA (IEPA) Site Remediation Program and remains overseen by the agency.

In 1999, Cytec Industries conducted grading to improve storm water runoff. Cytec also installed monitoring wells at that time to understand what, if

any, impact the site could have on groundwater in the area. In 2000 and 2001, additional monitoring wells were installed and sampled.

Monitoring

In 2003, Cytec began a groundwater monitoring program at the site, which includes onsite and offsite wells. All work is overseen by the Illinois Environmental Protection Agency (IEPA).

Current Work

As agreed upon with the IEPA, a residential monitoring event will be conducted during the coming weeks. This work requires sampling approximately 15 residential wells to ensure the continued quality of the water. Those whose wells are to be sampled have been contacted by the project team.

Schedule

Cytec and its team will begin the sampling process in the coming weeks. The sampling will be scheduled based upon feedback from the property owners.

Map of Project

A map of the project area and details about the work can be found in the inside section of this fact sheet.

Project Team

Cytec and its team of consultants will be managing the process. All work is performed following guidelines set forth by the Illinois Environmental Protection Agency (IEPA). The team consists of:
ERM is the technical consultant working on the project and is responsible for visiting properties and taking water samples.

Ann Green Communications is the communications consultant and is responsible for ensuring residents are kept informed about the project. The firm is available to answer questions and to provide information.

Contact information for each is included in this newsletter and detailed on the back page.

What Community Residents May Notice During Work on Project

The residential well sampling will be completed by project members experienced in the necessary work. This work is similar to work described in the above article. The ERM team members will either sampling from an outside spigot or from an inside water faucet. Sample containers, intended for this type of work, will be used. The time needed to take the sample is about 15 minutes to run the water to flush the pipes and to collect the sample. Samples are then marked with the residential address. The samplers will be driving cars or trucks, wearing highly-visible vests with hats with the ERM logo. The workers will present personal identification with the company's name and address.

Project Map Depicting Site and Adjacent Area

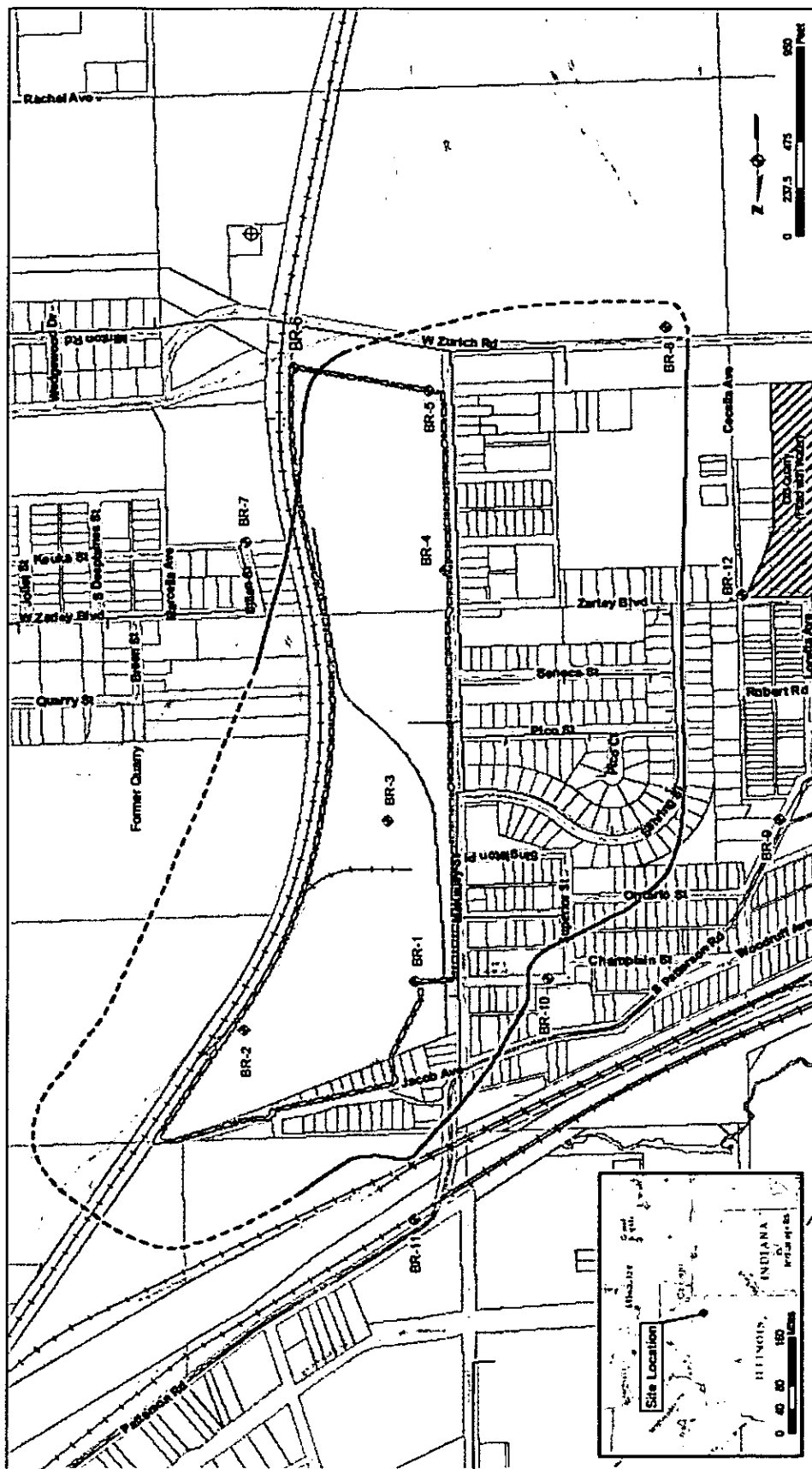


Figure 1
Site and Surrounding Area
Cytotec Industries Inc.
Joliet, Illinois

Note:
Sulfate plume boundary subject to change pending supplementary residential well sampling.

- Legend**
- Approximate Location of Monitoring Well (Symbol)
 - Drainage Stream (Approximate) (Dashed line)
 - Approximate Extent of 2014 Sulfate Concentrations Greater than 400 mg/L (Dashed where Inferred) (Dashed line)
 - Municipal Water Line (Solid line)
 - Railroad (Line with cross-ticks)
 - Parcel Boundary (Thin solid line)
 - Sulfate plume boundary (Thick dashed line)
 - Site Boundary (Thick solid line)
 - Southeast Joliet Sanitary District Reserve Water Supply Well (Closed and Abandoned) (Circle with cross)

Professional Resource Management
Civil/Geotechnical, Suite 1000
10000 W. 120th St., Overland Park, KS 66211

This map shows the sulfate plume boundary, which is subject to change after the residential well sampling is completed and reviewed. Results will be shared with the community.

Project and Sulfate Information

Why is the work necessary?

Groundwater beneath and near the area of the plant contains elevated levels of sulfate, a material associated with the plant during its years of operations. The groundwater migrated off-site from the site and was detected in several private wells in the adjacent community. Those homes were placed on public water. The work is reviewed on a regular basis (five-year cycle). Through review, technical experts determined a few more residential wells must be sampled to determine if they show elevated levels of the compound. If the levels are detected at a certain amount (also called threshold), action will be taken. That work would follow the steps outlined below.

What are sulfates?

Sulfates are a compound of sulfur and oxygen. Sulfates readily dissolve in water, similar to the way salt dissolves. The material occurs naturally in drinking water and is a nutrient needed by humans and animals. The Illinois Environmental Protection Agency (IEPA) has established a Groundwater Quality Standard (GWQSL) of 400mg/l for sulfates. At this level, sulfates may have an effect on taste and odor.

How will this work be conducted?

Details of the work are outlined in the "What Community Residents May Notice During Work on the Project" article on the front page.

What is the schedule for this work and completion?

The sampling is tentatively scheduled to be conducted in late May to early June and will continue until all sampling work is completed. This is expected to take approximately two weeks once work begins.

How will information be shared with the residents?

Contact is being made directly with residents whose properties must be sampled. Once the sampling is completed, which is simply a collection of water from the tap, the water will be analyzed by a laboratory approved by the IEPA for such work. Once results are known, the information will be shared with residents. There also will be an information session planned for neighbors who have questions and concerns. The date, time and location of the information session will be shared in advance.

What will be done if action must be taken?

Cytac and the team will work with the public water supplier to provide public water to those homes—at no cost to the current residents at those addresses. We also will work with the city and the county to secure an ordinance be put into place that outlines groundwater can no longer be used for drinking.

If a residence has to be placed on public water, how much time will that take once the results of the sampling are known?

At this time, we are uncertain. However, we will work closely with the city and county as well as the public water supply company to move the process along as quickly as possible.

What will be done for residents until the public water supply can be provided?

Those whose wells come back with sulfate levels that reach certain amounts will be provided bottled water for drinking and cooking.

Can the water be used for bathing and washing even if it has the elevated levels?

Yes.

Has similar work been conducted in the community?

Yes. In the late 1990's and early 2000's, monitoring wells were installed and sampled. Private wells in the neighborhood also were sampled. After this work, residences with elevated levels of sulfate in their well water were placed on public water.

Project Team and Contact Information

If you would like more information about the work or wish to be added to the mailing list, a toll-free phone number is provided in this section of the newsletter.

Ken Milo
Project Manager
Cytec Industries
ken.milo@cytec.com

Dan Petersen, Ph.D., P.G.
Technical Consultant
ERM
Dan.Petersen@erm.com

Mary Green
Community Relations Consultant
Ann Green Communications
mgreen@anngreencomm.com

**For project information, please contact, toll-free,
1-855-247-2939.**

Jeff Guy
Project Manager
Illinois Environmental Protection Agency
Jeff.Guy@illinois.gov

Carol Fuller
Community Right-to-Know
Illinois Environmental Protection Agency
Carol.Fuller@illinois.gov

Project Website/Information Repository
<http://www.cyttec.com/content/she-information-Joliet>

Joliet Public Library
150 N Ottawa St.
Joliet, IL
M-TH, 9 a.m.-9 p.m./F-Saturday, 9 a.m.-5 p.m.

Information to be Shared with Residents

Once the sampling results are known, Cytec will share the information with the residents whose wells were sampled. Cytec also will host an information session to allow residents to ask questions and to gain additional details related to the work.

1306 MCKINLEY AVENUE PROJECT
ANN GREEN COMMUNICATIONS
300 D STREET
CHARLESTON, WV 25303

Bulk Mailing Permit Location.

This is location for mailing label.



FILE COPY

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Site Remediation Program Form (DRM-2)
(To be Submitted with all Plans and Reports)

You may complete this form online, save a copy, print, sign and mail it to the address above.

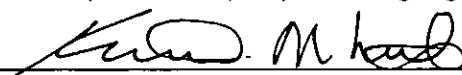
I. Site Identification:

Site Name:	<u>Cytec Industries Inc.</u>		
Street Address:	<u>1301 McKinley Avenue</u>	P.O. Box:	
City:	<u>Joliet</u>	State:	<u>IL</u> Zip Code: <u>60436</u> Phone: <u></u>
Illinois Inventory ID Number:	<u>1978090003</u>	IEMA Incident Number:	<u></u>

II. Remediation Applicant:

Applicant's Name:	Mr./Ms. <u>Mr.</u> <u>Kenneth Milo</u>		
Company:	<u>Solvay USA</u>		
Street Address:	<u>504 Carnegie Center</u>	P.O. Box:	
City:	<u>Princeton</u>	State:	<u>NJ</u> Zip Code: <u>08540</u> Phone: <u>905-374-5844</u>
Email Address:	<u>Ken.Milo@solvay.com</u>		

I hereby request that the Illinois EPA review and evaluate the attached project documents in accordance with the terms and conditions of the Environmental Protection Act (415 ILCS 5), implementing regulations, and the review and evaluation services agreement.

Remediation Applicant's Signature:  Date: April 24, 2017

III. Contact Person for Remediation Applicant:

Contact's Name:	Mr./Ms. <u>Mr.</u> <u>Same as Above</u>		
Company:			
Street Address:		P.O. Box:	
City:		State:	
Email Address:			

Contact Person for Consultant:

Contact's Name:	Mr./Ms. <u>Mr.</u> <u>Kris D. Hallinger</u>		
Company:	<u>ERM</u>		
Street Address:	<u>200 Princeton South Corporate Center, Suite 160</u>	P.O. Box:	
City:	<u>Ewing</u>	State:	<u>NJ</u> Zip Code: <u>08628</u> Phone: <u>609-403-7560</u>
Email Address:	<u>kris.hallinger@erm.com</u>		

IV. Review & Evaluation Licensed Professional Engineer or Geologist ("RELPEG"), if applicable:

RELPEG's Name:	Mr./Ms. <u>Not Applicable</u>		
Company:			
Street Address:		P.O. Box:	
City:		State:	
Email Address:			

RECEIVED

MAY -1 2017

IEPA/BOL

V. Project Documents Being Submitted:

Document Title: <u>Technical Report - Comment Response document</u>	Date of Preparation of Plan or Report: <u>April 2017</u>
Prepared by: <u>ERM</u>	Prepared For: <u>Solvay USA, and Jeff Guy at IEPA</u>
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input checked="" type="checkbox"/> Other: <u>Response to IEPA Comments</u>

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared For: _____
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input type="checkbox"/> Other: _____

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared For: _____
Type of Document Submitted:	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input type="checkbox"/> Other: _____

VI. Professional Engineer's or Geologist's Seal or Stamp:

I attest that all site investigations or remedial activities that are subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices or principles of professional geology, and the information presented is accurate and complete.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 Felony, second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Engineer's or Geologist's Name: Jennifer Stanhope

Company: ERM

Registration Number: 062-054582 Phone: 817-258-8900

License Expiration Date: 11-30-2017

Signature:  Date: 4/28/17

Note: The authority of a Licensed Professional Geologist to certify documents submitted to the Illinois Environmental Protection Agency for review and evaluation pursuant to Title XVII of the Environmental Protection Act is limited to Site Investigation Reports (415 ILCS 58.7(f), as amended by P. A. 92-0735, effective July 25, 2002. A Licensed Professional Geologist cannot certify Remediation Objectives Reports, Remedial Action Plans or Remedial Action Completion Reports.



All information submitted is available to the public except when specifically designated by the Remediation Applicant to be treated confidentially as a trade secret or secret process in accordance with the Illinois Compiled Statutes, Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines. The Illinois EPA is authorized to require this information under Sections 415 ILCS 5/58 - 58.12 of the Environmental Protection Act and regulations promulgated thereunder. Disclosure of this information is required as a condition of participation in the Site Remediation Program. Failure to do so may prevent this form from being processed and could result in your plan(s) or report(s) being rejected. This form has been approved by the Forms Management Center.

Attachment B

HRS Quickscore

**** CONFIDENTIAL ****
 ****PRE-DECISIONAL DOCUMENT ****
 **** SUMMARY SCORESHEET ****
 **** FOR COMPUTING PROJECTED HRS SCORE ****

**** Do Not Cite or Quote ****

Site Name: American Cyanamide Company Region: Region 5

Scenario Name: Site Reassessment
(Manganese)

City, County, State: Joliet, Will County, Evaluator: Lee Crank
Illinois, Illinois

EPA ID#: ILD 000675264 Date: 09/08/2020

Lat/Long: 41° 30' 00", -88° 05' 10"

Congressional District: 11

This Scoresheet is for: Other

Scenario Name: Site Reassessment (Manganese)

Description:

	S pathway	S ² pathway
Ground Water Migration Pathway Score (S _{gw})	30.74	944.95
Surface Water Migration Pathway Score (S _{sw})	0.0	0.0
Soil Exposure and Subsurface Intrusion Pathway Score (S _{sessi})	0.0	0.0
Air Migration Score (S _a)	0.0	0.0
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		944.94
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		236.23
$/(S^2_{gw} + S^2_{sw} + S^2_{sessi} + S^2_a)/4$		15.36

Pathways not assigned a score (explain):

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated: Silurian Dolomite		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	0.0
2. Potential to Release:		
2a. Containment	10	9.0
2b. Net Precipitation	10	10.0
2c. Depth to Aquifer	5	3.0
2d. Travel Time	35	15.0
2e. Potential to Release [(lines 2a(2b + 2c + 2d)]	500	252.0
3. Likelihood of Release (higher of lines 1 and 2e)	550	252.0
Waste Characteristics:		
4. Toxicity/Mobility	(a)	100.0
5. Hazardous Waste Quantity	(a)	10.0
6. Waste Characteristics	100	6.0
Targets:		
7. Nearest Well	(b)	20.0
8. Population:		
8a. Level I Concentrations	(b)	0.0
8b. Level II Concentrations	(b)	0.0
8c. Potential Contamination	(b)	1632.5
8d. Population (lines 8a + 8b + 8c)	(b)	1632.5
9. Resources	5	5.0
10. Wellhead Protection Area	20	20.0
11. Targets (lines 7 + 8d + 9 + 10)	(b)	1677.5
Ground Water Migration Score for an Aquifer:		
12. Aquifer Score [(lines 3 x 6 x 11)/82,500] ^c	100	30.74
Ground Water Migration Pathway Score:		
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated) ^c	100	0.0

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c Do not round to nearest integer

TABLE 5-1 --SOIL EXPOSURE COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		
Waste Characteristics:			
2. Toxicity	(a)	0.0	
3. Hazardous Waste Quantity	(a)		
4. Waste Characteristics	100		0.0
Targets:			
5. Resident Individual	50		
6. Resident Population:			
6a. Level I Concentrations	(b)	0	
6b. Level II Concentrations	(b)	0	
6c. Population (lines 6a + 6b)	(b)	0	
7. Workers	15	0.0	
8. Resources	5		
9. Terrestrial Sensitive Environments	(c)		
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		0.0
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		0.0
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	0.0	
13. Area of Contamination	100	5.0	
14. Likelihood of Exposure	500		0.0
Waste Characteristics:			
15. Toxicity	(a)	0.0	
16. Hazardous Waste Quantity	(a)	0.0	
17. Waste Characteristics	100		0.0
Targets:			
18. Nearby Individual	1	0.0	
19. Population Within 1 Mile	(b)	0	
20. Targets (lines 18 + 19)	(b)		0
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		0.0
Soil Exposure Component Score:			
22. Pathway Score ^d (S _{se}), [lines (11+21)/82,500, subject to max of 100]	100		

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^c No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60

^d Do not round to nearest integer

TABLE 5-11 --SUBSURFACE INTRUSION COMPONENT SCORESHEET

Factor Categories and Factors	Maximum Value	Value Assigned
Likelihood of Exposure:		
1. Observed Exposure	550	0.0
2. Potential for Exposure		
2a. Structure Containment	10	1.0
2b. Depth to contamination	10	0.0
2c. Vertical Migration	15	1.0
2d. Vapor Migration Potential	25	0.0
3. Potential for Exposure (lines 2a * (2b+2c+2d), subject to a maximum of 500)	500	1.0
4. Likelihood of Exposure (higher of lines 1 or 3)	550	1.0
Waste Characteristics:		
5. Toxicity/Degradation	(a)	
6. Hazardous Waste Quantity	(a)	
7. Waste Characteristics (subject to a maximum of 100)	100	
Targets:		
8. Exposed Individual	50	
9. Population:		
9a. Level I Concentrations	(b)	0
9b. Level II Concentrations	(b)	0
9c. Population within an Area of Subsurface Contamination	(b)	0.0
9d. Total Population (lines 9a + 9b + 9c)	(b)	0
10. Resources	5	0.0
11. Targets (lines 8 + 9d + 10)	(b)	0
Subsurface Intrusion Component Score:		
12. Subsurface Intrusion Component (lines 4 x 7 x 11)/82,500 ^C (subject to a maximum of 100)	100	
Soil Exposure and Subsurface Intrusion Pathway Score:		
13. Soil Exposure Component + Subsurface Intrusion Component (subject to a maximum of 100)	100	
^a Maximum value applies to waste characteristics category		
^b Maximum value not applicable		
^c No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60		

TABLE 6-1 --AIR MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Likelihood of Release:		
1. Observed Release	550	
2. Potential to Release:		
2a. Gas Potential to Release	500	
2b. Particulate Potential to Release	500	
2c. Potential to Release (higher of lines 2a and 2b)	500	
3. Likelihood of Release (higher of lines 1 and 2c)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Individual	50	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(c)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Sensitive Environments:		
10a. Actual Contamination	(c)	
10b. Potential Contamination	(c)	
10c. Sensitive Environments (lines 10a + 10b)	(c)	
11. Targets (lines 7 + 8d + 9 + 10c)	(b)	
Air Migration Pathway Score:		
12. Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500] ^d	100	

^a Maximum value applies to waste characteristics category

^b Maximum value not applicable

^cNo specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.

^d Do not round to nearest integer